AUGUST 10, 1924

THE RUBBER AGE

VOL. XV. NO. 9

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THE RUBBER AGE

The Only Twice-a-Month Rubber Publication

VOL. XV. AUGUST 10, 1924 No. 9

RUBBER PLANTS SHOW INCREASED PRODUCTION

Reports From Rubber Centers Indicate Healthy Condition of Rubber Factories As Regards Earnings and Production—Tire Sales Are Satisfactory.

Will the rubber industry show any profits when the financial statements of the larger companies for the first six months are issued? What are the tire factories doing? These are the questions which are being given consideration by many in the rubber industry at the present time.

As a whole, tire sales have been increasing during the past few months. Since the advent of warm weather dealer business has been very satisfactory, according to a number of manufacturers, with the result that the large inventory of both dealers and manufacturers has decreased somewhat. Production schedules have shown a steady tendency with daily production in excess of 75,000 in the Akron district alone. This showing is very satisfactory when the condition of the automobile industry is considered. Many automobile factories have decreased production rather sharply and dealers are not finding sales as easy as in the past. This condition, of course, is not reflected in the tire industry for a long time afterward and in this instance there is little reason to believe that it will ever be felt by tire manufacturers.

Good Profits Expected

Reports from Akron reveal the fact that satisfactory financial reports are expected. Even with the low prices of the past few months profits above the normal are sure to be reported. Heavy curtailment of expenses and strict economy is credited to a large extent for this expected showing. Every department has felt this tightening of expenses—especially the sales and advertising departments.

Firestone earnings are expected to be in the neighborhood of $4,000,000 to $5,000,000 for the fiscal year ending Oct. 31. Goodyear, which recently increased production in both its tube and tire departments, is said to be considering a plan to re-establish its preferred stock on a dividend-paying basis by offering stockholders 126% of a new preferred stock for each 100% now held.

(Continued on next page)

GEDDES SEES RUBBER AS HIGHWAY MATERIAL

LONDON, July 23—Sir Eric Geddes, in an address at a gathering of representatives of the rubber industries, declared that the growing and use of crude rubber are still in an early stage. He predicted great developments, with a general restoration of trade in Europe and in the Far East, and suggested the use of rubber in the making of highways.

Gooding with Firestone

H. C. Gooding, formerly district sales manager of the Miller Rubber Company, is now manager of the Houston, Tex., branch of the Firestone Tire & Rubber Company.

McLaughlin Selling?

C. W. McLaughlin, former treasurer of the Mohawk Rubber Company, is reported to be soliciting advertising for the *India Rubber Review* in Akron.

Fisk Plant Reopens

After a shutdown of two weeks the Fisk Rubber Co. reopened its plant at Chicopee Falls, Mass., early in July. It was stated that orders are coming in and that business conditions have improved materially. About 2500 workers are effected. Full time operation is planned in contrast to the three-day schedule in effect before the shutdown.

Bullock Visits Clay Plant

E. L. Bullock, President of E. L. Bullock & Sons, Inc., 99 John St., New York City, recently returned from a five week visit to their Alabama clay and ochre plant and reports increased production and improved business conditions throughout the South. This concern, handling chemicals and compounding ingredients for the rubber industry, is now in a position to take care of all requirements for direct shipment from works.

URGE RUBBER BLOCKS FOR HARVARD BRIDGE

Contract Awarded for Paving Boston Bridge but Material Has Not Been Specified—Day Baker Urges Use of Rubber Blocks—Would Cost $157,000

The Metropolitan District Commission of Boston, Mass., met recently to consider the kind of material to be used for surfacing the reconstructed Harvard Bridge. The contract has been awarded to Vincenzo Grande of Boston, but the kind of surfacing material was not decided upon at that time.

Asserting that the pavement specified for the bridge will not abate the noise nuisance, Day Baker, of the Massachusetts Automobile Dealer and Garage Association and recently appointed chairman of the Committee on Rubber Roads for the World's Rubber and Tropical Products Exposition, to be held in Boston, Oct. 10 to 17, favors the laying of rubber pavement upon the bridge.

John R. Rablin, director of engineering for the district commission, said that no estimates for rubber pavement have been submitted to the commission in the bids received. He declined to give an estimate as to the cost of such pavement. He expressed the opinion that rubber pavement for the Harvard Bridge would be too expensive, and was as yet experimental in character.

Cost of Various Pavings

Mr. Baker called attention to the estimates of the district commission's engineers as to the cost of various paving materials upon the Harvard Bridge. He showed that for the 12,100 square yards of surface to be paved the expense for vitrified brick pavement would be about $36,000, for granite blocks about $56,000, and for wood blocks about $60,000. The rubber pavement recently laid upon the Northern Avenue Bridge, he said, cost approximately $13 per square yard, making a total cost for similar pavement upon the Harvard Bridge of about $157,000. As the appropriation for reconstruction was $600,000, Mr. Baker believed that the rubber pavement could be laid without any additional appropriation being necessary, and so urged the commission.

Mr. Baker pointed to the rubber pavement laid in the St. Pancras Station Yard, in London, in 1879, portions of

(Continued on Page 335)

R. T. VANDERBILT TAKES OVER THERMATOMIC CARBON CO.

A combination has been effected on August 1st whereby the R. T. Vanderbilt Company took over the sales of the products manufactured by the Thermatomic Carbon Company at Sterlington, Louisiana.

This arrangement brings together the combined efforts of two rubber men, Dr. A. A. Somerville, and Dr. E. B. Spear.

Dr. Somerville, formerly with the U. S. Rubber Company, is now Vice President of the R. T. Vanderbilt Company, and will have charge of the sale of Thermatomic Carbon Blacks.

Dr. Spear, formerly with the Goodyear Tire & Rubber Company at Akron, and present Chairman of the Rubber Section of the American Chemical Society, is now Vice President of the Thermatomic Carbon Company. He will devote his time and efforts to the production, research, and development of Thermatomic Carbon Blacks at Sterlington.

The company owns plants operating in the Monroe, Louisiana gas field and controls patents covering a process whereby gas black may be used at a considerably lower cost than is considered possible by the older methods of burning the gas.

The addition of this black to the already well-known line of Vanderbilt compounding materials insures that it will be well handled by technically trained men at a minimum sales expense and that it will be sold at a very reasonable price.

Thermatomic Black is a soft Gas Black. It does not stiffen a rubber mix as is the case when an ordinary gas black is used. The Thermatomic Black can be used to advantage in rich, rubbery stocks such as automobile inner tubes and tire frictions where it produces a soft but tough stock but is not injured and does not generate great heat by continued flexing. Neither does it retard the rate of cure as does some reinforcing materials. Due to its low volume cost and its unusual qualities when properly compounded, Dr. Somerville believes that a big use will be found for this black.

Say Paul Rubber is Insolvent

An involuntary petition in bankruptcy has been filed in the United States District Court at Greensboro, N. C., against the Paul Rubber Co., Salisbury, N. C. The petition is signed by three creditors but, according to their attorneys, approximately 200 creditors have claims aggregating in the neighborhood of $200,000 against the company.

M. W. McConnell, president, left Salisbury several weeks ago, and it is understood that he is now in Oklahoma. C. S. Munro has recently been put in charge of the plant as general manager. W. C. Maupin is secretary and treasurer.

The Paul Rubber Co. has a large plant, an authorized capital of several hundred thousand dollars, and on full production basis employs about 200 hands. It manufactures tires and tubes.

Miller Sponge Rubber Cushion

New Chair Cushion

A chair cushion especially adapted for office chairs has recently been introduced by the Miller Rubber Co., Akron, Ohio. The cushion is made of sponge rubber about ¾ inch thick and is covered on one side with felt. It is made in several sizes to accommodate large and small chairs. Claims made by the manufacturers are less wear on the clothes, prevention of gloss and greater comfort to the user.

Corrugated Rubber Sold

Ralph F. Butts, representing the guarantors of the industrial expansion fund of the Chamber of Commerce, bought in at a foreclosure sale held recently at the Poughkeepsie court house the plant of the Corrugated Rubber Co. The factory, which is located on Violet Ave. in Poughkeepsie, N. Y., brought $34,701. The sale was the result of an action to foreclose a mortgage of $34,700 held by the Poughkeepsie Trust Co. As the guarantors held a second mortgage of $36,000, they bought in the plant for their own protection.

Arthur S. Halpin, referee, conducted the sale of the plant, which is valued at more than $80,000. It is the plan of the guarantors to launch a vigorous campaign to resell the property. The factory never started production.

Export Company Operating

The American Rubber Export Company, announcement of whose organization appeared in THE RUBBER AGE of July 10, has succeeded to the business and good will of the Rubber Manufacturers' Export Association and will continue its offices in the Metropolitan Building, Akron. The president is Walter C. Cassidy and the vice president is Oliver C. Moles, both of whom served for several years with the export department of the Goodyear Tire & Rubber company and both occupied executive positions with the Rubber Manufacturers' Export Association since its organization last winter. The organization offers rubber manufacturers an oppotunity to export their products through a central agency.

RUBBER PLANTS SHOW INCREASED PRODUCTION

(Continued from Page 333)

United States Rubber Co. profits for the first six months of this year are reported to be in the neighborhood of $5,000,000 which is equivalent to about 3% on its common stock. This showing is due largely to the activity of the tire department as footwear and mechanicals have been lagging behind. At Goodrich, where tire production was just increased to 20,000 a day, the rigid economy plan by President Work and Vice-President Rutherford resulted in net earnings of $2,755,000 and net sales of $50,100,000 for the first six months of 1924. Seiberling, Miller, Mohawk and General are all said to be progressing satisfactorily.

Demand from mills and railroads for hose and belting has shown a large increase recently and several factories are already planning to increase production in these lines in anticipation of a good Fall business. Such a tendency indicates a revival of general business and the rubber factories plan on being prepared for a large movement of mechanicals in the closing months of the year.

Boston Business Active

As the result of interviews with the sales managers of various companies in and around Boston, it was found that the consensus of opinion warrants the statement that the rubber industry is improved.

In New England, since early in the year, the demand for footwear was poor for the reason, in the main, that an exceptionally open and mild winter curtailed the need for rubber goods. As a repetition of it the coming winter cannot reasonably be looked for, it is expected that the trade during the fall will be as good as normally is the case. As customary, the plants are temporarly shut down, and as this was begun a little earlier than usual this season, the period is longer for that reason.

Reclaimers state that they note a better feeling regarding the prospect for the resumption of more activity, though the demand has not as yet set in.

The leading manufacturers of tires report a good demand. Manufacturers of rubber specialties have had a fair seasonable trade, in some instances as good as the corresponding time a year ago. In a general way, it is warranted to state that business men in this section are of the opinion that the outlook is becoming gradually more reassuring than it was in the spring.

Panther Plant Closes

It was reported that the plant of the Panther Rubber Mfg. Co., at Stoughton, Mass., closed on July 24 following a reduction of wages to employees. It was said that a cut of 14 per cent was made recently and a further cut of 6 per cent on July 23 caused the workers to refuse to continue. The company manufactures rubber heels, soles, soling and mechanical molded rubber goods. Frank Bernstein is President and Arthur Greenbaum, Factory Manager.

PLANS FOR MEETING OF CHEMISTS IN ITHACA

Preliminary Program of the Ithaca Meeting of the American Chemical Society Announced—Addresses by Leading Chemists—Inspection of Baker Laboratory.

The sixty-eighth meeting of the American Chemical Society will be held at Cornell University, Ithaca, N. Y., September 8 to 13. The arrangements committee has already prepared a preliminary program which includes a number of addresses by leading chemists and a few tours of inspection including the Baker Laboratory of the University and the salt works.

Accommodations this year for housing chemists are far better than is usually the case when hotels are used. The university is placing a number of dormitories and dining rooms at the disposal of the society and its members and it is expected that a more enjoyable time will be had by all those attending the meetings.

Registration opens on the first morning in Baker laboratory. In the afternoon the council meeting will be held and continued in the evening if necessary. On Tuesday, September 9th, the general meeting will take place at 9:30 A. M. in Bailey Hall. Dr. Livingston Farrand, President of Cornell, will preside and addresses will be made by Dr. Leo Baekeland, president of the A.C.S., Sir Max Muspratt, Prof. Sorensen and Sir Robert Robinson. In the afternoon, the chemists will listen to a description of the laboratory and later make an inspection of it. An entertainment will be given in Bailey Hall in the evening for members and guests.

Wednesday, Thursday and Friday will be devoted to divisional meetings beginning at 9:30 each morning. Trips to points of industrial or scenic interest will be taken on Saturday.

Rubber chemists desiring to present papers at this meeting should send titles and 100 word abstracts to Secretary Arnold H. Smith, 6748 Newgard Ave., Chicago, Ill. Such abstracts should be in the hands of the secretary by August 8.

Rubber Earnings Drop

Trade depression that became marked in the spring is reflected in a sharp decline in weekly earnings, employment and average hours of work as revealed by the latest figures compiled by the National Industrial Conference Board, 247 Park Avenue, New York City.

In May, the average weekly earnings of all wage earners covered by 23 industries reached the lowest level since March, 1923—the average paid being $26.10, showing a decrease of 2.1 per cent from the April level. In 9 industries there were small increases but in 14 industries weekly earnings declined, notably in the automobiles, iron and steel, rubber and foundry and machine shop products.

A further sign of the slackening in manufacturing activity is indicated by the fact that the average hours of work per wage earner have also fallen. They dropped to 46.6 hours a week between April and May, an hour less than the previous month and three hours less than in April, 1923. The work week of the average wage earner thus reaches the lowest point since 1921. The industries showing principal declines are automobiles, hosiery and knit goods, iron and steel, leather tanning, rubber and foundry and machine shop products.

June Imports of Tires

During June the imports of tires and tubes into the United States numbered 35,726, a record exceeded only by the March imports which numbered 45,138, and considerably above the average imports for the preceding five months of this year. The value of the June imports was $227,000, establishing a high record for monthly tire imports. The unit value per piece in May was $6.91; in June the unit value per piece was only $6.35. The imports by countries for the first six months of 1924 are shown below:

IMPORTS BY COUNTRIES SINCE JANUARY 1, 1924

	France		Great Britain		Canada	
	Number	Value	Number	Value	Number	Value
January	18,001	$85,765	76	$1,702	64	$798
February	12,831	80,747	7	43	22	323
March	45,018	213,616	74	217	46	507
April	26,002	163.710	24	60	74	1,293
May	27,068	187,143	14	248	170	2,269
June	35,720	226,861	3	104	3	35

Converse Closes for Two Weeks

It is reported that the plant of the Converse Rubber Shoe Company, Malden, Mass., will shut down for two weeks, from Aug. 16 to Sept. 2.

URGE RUBBER BLOCKS FOR HARVARD BRIDGE

(Continued from Page 333)

which are still in place, after 45 years of use, as an example of the durability of rubber pavement. He also called attention to the Gothic bridge, at Hamburg, Germany, a large steel-span structure, somewhat similar in construction to the Harvard Bridge, upon which no pavement could be kept, until rubber pavement was finally laid, where it proved satisfactory and preserved the usefulness of the bridge. He said further:

"The district commission is planning to pave the bridge when reconstructed with either vitrified brick or with granite blocks. The vitrified bricks make a very noisy pavement, when laid over wood, and granite blocks, while making a deader sound, will not eliminate the noise. Moreover, as time goes on, the vibration of the bridge, due to its semi-cantilever type of construction, will break the bonding of the bricks, and then the pounding will be like a great drum.

"The commission did not feel warranted in specifying rubber paving, similar to that now in use on Northern Avenue Bridge, as they thought that the cost of reconstruction added to the cost of rubber paving would exceed the amount appropriated by the Legislature. Now that the bids for reconstruction have been submitted, it is found that not only can the bridge be reconstructed, but the road surfaces can be paved with an improved rubber pavement, and quite a substantial balance of the authorized appropriation remain."

George A. Ludington

George A. Ludington died on July 17 at his home, 30 Oxford Street, Springfield, Mass. Since 1905, Mr. Ludington has been prominently associated with the Fisk Rubber Company, first, as superintendent of the plant at Chicopee Falls, later as factory manager at the same place and for the last five years as vice-president in charge of rubber purchases with headquarters at the Fisk executive offices at 250 West 57th St., New York city.

Mr. Ludington made several trips to the Far East for Fisk and with Mrs. Ludington was in the harbor at Yokohama at the time of the Japanese earthquake. His friends feel that this unfortunate experience may have hastened his death.

He was a man of cordial and sincere personality and was held in affectionate regard by all his close associates, and in both his social and business relations was loved and esteemed. He was a member of the Colony Club of Springfield, Springfield Country Club, Lotus Club of New York city, N.Y.A.C., India House, Pilgrims Society, Nayasset Club, Woods Hole Golf Club and Wykagyl Country Club.

Prior to his association with the Fisk Rubber Company Mr. Ludington spent 10 years with the Morgan & Wright Company of Chicago, learning the rubber business. Immediately previous to going to Springfield he was for three years superintendent of the Firestone Tire and Rubber Company.

George A. Ludington

Mr. Ludington was born in Chatfield, Minn., Nov. 4, 1869, the son of Martha and George Ludington. Besides his wife he leaves three sisters, Mrs. George M. Naylor of Larimore, N. D., Mrs. J. D. Van Fleet of Minot, N. D., and Mrs. Curtiss Russell of Igo, Cal.

FAULTLESS HOLDS SALES CONVENTION DURING JULY

A convention of salesmen was held at the plant of the Faultless Rubber Co., Ashland, Ohio, during the middle of July. Salesmen from all over the country were in attendance. The many new improvements in Faultless products and all new articles were thoroughly explained.
The many new improvements in Faultless products and all new articles were thoroughly explained.

The convention closed with a luncheon at the Ashland Country Club and was followed by a golf tournament participated in by the salesmen and the office and factory executives and department heads.

Great enthusiasm was shown by the sales representatives over the complete line of rubber sundries made by Faultless and new sales records are expected to be made during the coming year.

Newtown Falls Plant Sold

The Perfecto Products Corporation took over the factory of the defunct Newtown Falls Rubber Co., Newtown Falls, Ohio, recently and have already started the manufacture of composition battery jars. It is stated that the Perfecto company is a closed corporation, all the stock being held by S. H. Cauffiel of Johnstown, Pa., and W. M. Fisher of Cleveland. Mr. Fisher will be in active charge of the plant.

Hose Campaign Effective

The movement inaugurated by the National Hardware Association and approved by the Mechanical Rubber Goods Manufacturers' Division of the Rubber Association to standardize garden hose, eliminating the ½″ and ¾″ sizes, and adopting the ⅝″ as standard, has been the subject of a number of additional additional advertisements in the hardware publications in recent issues, the object of the campaign being to acquaint the trade with the benefits of such a course and to win the cooperation and support of hardware dealers of the country. The obvious gain to manufacturers in reducing the size of inventories and simplifying records, as well as the cost of manufacture, is not the only appeal of this undertaking, for the advantages are primarily with the wholesaler and retailer and ultimately with the consumer.

The standard size delivers the water without friction, a fault which could not be remedied in the other hose fittings and aside from the qualities of rapidity and convenience which the ⅝″ size possesses, its durability beyond the life of the others is assured because it will not kink or burst as easily as the hose with the larger channel.

A fitting that will do the work as well as other sizes, from which the defects encountered previously are absent, and which profitably effects all concerned in its use and manufacture combines the essential qualities which make for standardization.

CENTRAL SELLING AGENCY BEING FORMED IN LONDON

A news dispatch, under date of July 25, has been received stating that the rubber growers of Great Britain are forming an association with a view of controlling rubber prices and to sell direct to consumers. It is stated that the capital needed for the formation of this syndicate is between $25,000,000 and $35,000,000. Dutch planters are not expected to join the movement, the report concludes.

At the same time a report is received from Singapore that the attempt to form a selling agency is an admission of the failure of the Stevenson restriction plan and that the proposed selling agency will be used to make restriction a success, so bolstering up one artificial remedy with another. This report continues, "To assume that a central selling agency would remedy the defects of restriction is an illusion. Those defects are far too deep-seated—are inherent in it and are not susceptible to homeopathic treatment."

BRITISH TOY BALLOON TRADE NOT ENDANGERED

(Special to THE RUBBER AGE*)*

The alarm and uncertainty, which was aroused in the minds of British toy buyers recently by the prosecution of a man for selling balloons capable of being inflated by the human breath, has now been dispelled by an explanation of the Act under which he was prosecuted. (This subject was discussed in THE RUBBER AGE of June 25)

The dealer was summoned under the new Co-operation Act of the city of Stoke, which prohibits the sale of balloons by rag and bone men, or persons engaged in that particular trade only. It has been instituted purely from a hygienic point of view in order to prevent the possible transference of objectionable diseases. The Act does not in any way affect the sale of balloons if carried out in the ordinary course of business.

As the report of the case as circulated to the British press might give the impression that the sale of toy balloons capable of inflation by human breath is illegitimate, the above explanation is, perhaps, necessary. Certainly there need be no fear of curtailment of America's export trade in this line.

Servus Adds Philadelphia

The Servus Rubber Co., Rock Island, Ill., recently announced that it had entered into a contract with John Wanamaker in Philadelphia for the distribution of its products in that territory. The company manufactures rubber and canvas rubber soled footwear. Judson J. Adams is president, John T. Crowley, in charge of manufacturing and F. A. McDonald is factory superintendent.

The Market Place keeps your products on Main Street!

GOODRICH EARNS $5,135,000 FOR FIRST SIX MONTHS

The regular quarterly meeting of the Directors of The B. F. Goodrich Company was held July 23. The Directors issued the following statement: The net earnings of the B. F. Goodrich Company for the six months ended June 30, 1924, before deducting depreciation and interest on borrowed money amounted to $5,135,000. After deducting interest of $1,324,000. and depreciation of $1,056,000, the net earnings amounted to $2,755,000. The net sales for the same period were approximately $50,100,000.

The regular dividend of $1.75 per share was declared on the Preferred stock, payable on October 1, 1924, to stockholders of record September 20, 1924.

Sumatra Moves and Combines

The Sumatra Rubber Company has moved from Salem, O., to Barberton, O., and amalgamated with the Marlaneite Company under the name of the Sun Rubber Company. Melvin Lower and W. H. McCarty remain as president and secretary of the organization which manufactures rubber chair cushions, desk sets and other rubber specialties.

Dayton Business Satisfactory

In a recent statement, G. W. Spahr, general sales manager of the Dayton Rubber Mfg. Co., Dayton, Ohio, reports a very satisfactory increase in business. June shipments exceeded those of May by 11% and May showed substantial improvement over April. July business was, at the time this is being written, to exceed June by a wide margin.

Utah Rubber to Start

Announcement was made recently that the Utah Rubber Company of Salt Lake City, Utah, had acquired space in the Fisher Warehouse at Second South and Tenth West streets and will shortly begin the manufacture of garden hose, rubber mats, soles, heels and radio parts.

The new company hopes to acquire the mechanical equipment of the Mechanical Rubber Products company of Ogden, which is now in the hands of a receiver, and will negotiate for purchase of the plant machinery with the federal court.

"We hope to be able to dismantle the plant of the Mechanical Rubber Products company at Ogden and move the machinery to Salt Lake," said Mr. Neff. "We are under contract with Nathaniel Baldwin, Inc., for the manufacture of 1000 loud speakers a day and will begin operation at the earliest possible moment.

"In addition to our line of radio equipment, we will manufacture garden hose, rubber soles and heels and rubber mats."

Later reports from Ogden, Utah, indicate that the Mechanical Rubber Products Company have no intention of dismantling their plant, sufficient contracts being on hand for a year's operation according to A. E. Sidnell, manager of the trustees.

NEW SIX-WHEEL BUS NOW BEING MARKETED

Goodyear Researches Embodied in new Six Wheeled Coach Now Being Manufactured in Philadelphia—C. M. Schwab Heads Organization as Chairman.

After a long period of experimentation and research the Goodyear Tire & Rubber Co. developed the familiar six-wheeled truck which it has been using in long distance hauling between its New England fabric plant for a number of years. The success of this truck has finally led to its being taken over by the Six Wheel Company of Philadelphia, according to a recent announcement and already manufacturing operations have started to fill orders.

Of special interest is the fact that Charles M. Schwab is the Chairman of the Board of Directors of the company and that several former Goodyear men who had a great deal to do with the development of the truck are also connected with the new manufacturers. C. M. McCreery and E. W. Templin, both formerly in the highway transportation department of Goodyear are vice-president and chassis engineer respectively. Ralph Day is president.

The new vehicle is said to be the most radical departure ever made in heavy coach and truck construction, embodying many features that are revolutionary. The four rear wheels are assembled as a unit and are used as the drivers.

Impact Greatly Reduced

Its six-wheel construction has made possible the development of a pneumatic tired coach seating 27 passengers, with a road impact only one-fourth that of four-wheel solid tired vehicles of similar capacity. This is only one of the new features however.

By doubling traction surface, the practical elimination of skidding, application of brakes to all four rear wheels, distributing the load among six wheels and materially lowering the center of gravity of the coach, the producers of the new vehicle have demonstrated greater speed, safety and comfort, with longer life for the coach, than are obtainable with other types of construction.

In exhaustive tests made by the United States Bureau of Roads, it was demonstrated that the six-wheel truck, carrying a load of nearly nine tons, hit the road a blow of only 7,000 pounds after passing over an obstruction, while a four-wheel, solid tired vehicle carrying a load of only five tons hit the road with an impact of 29,000 pounds.

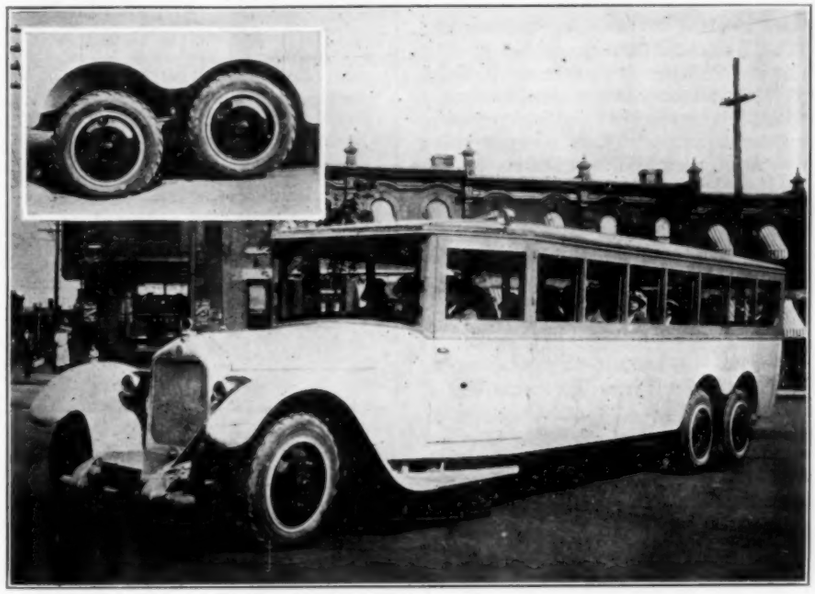
These impacts which destroy roads also are the cause of discomfort to the passengers, and their elimination in the six-wheel construction provides the comfort the public demands in this type of highway transportation.

Pneumatic tires, size 32 x 6, are used as standard equipment on all six wheels. Where greater road clearance is necessary, size 36 x 6 are used.

The four rear wheels being assembled as a unit which can be taken from under the chassis for repairs or replacement in about fifteen minutes. Radiator, engine, clutch and transmission are also assembled as a unit, and can be removed in thirty-five minutes.

The six-wheel coach is the result of an effort to develop a passenger vehicle of large capacity which could use pneumatic tires of reasonable size. By developing the six-wheel vehicle, the producers of the new coach have eliminated the objection to large capacity coaches from the highway maintenance standpoint, and have created a vehicle which rides as easily as the finest type of motor car.

A six-cylinder Continental motor of 70 horsepower is used, and transmission is four-speed gear type.



New six-wheel motor coach, driving and braking on the four rear wheels, introduced by the Six Wheel Company, of Philadelphia. Insert illustrates how the four rear wheels, pivoted on the frame midway between the two axles, absorb road impact.

Tiger Tire Liquidated

The Tiger Tire and Rubber Company, Limited of Toronto and Belleville, Canada, has gone into liquidation and it is expected that very little if anything, will be realized for shareholders. There is an issue of bonds outstanding, approximately $150,000 which are chiefly held by the company's creditors and the assets will only be sufficient to take care of this liability.

The Tiger Tire and Rubber Company was formed in the early part of 1921 with head office in Toronto and factory at Belleville. Capital outstanding is over $500,000 in preference shares and $1,050,175 in common shares. An offering of the shares of the company was made in Toronto and vicinity and the stock was distributed among 4,000 shareholders. An initial dividend was paid about October, 1922, on the preferred shares but none since.

ACCIDENTS CAUSE TRAFFIC TIGHTENING IN AKRON

Rubber company officials in Akron, where traffic regulations have tightened since Mrs. R. B. McCreary was instantly killed in an automobile collision at Oakdale avenue and Crosby streets on July 19, are disputing the statement of Lloyd D. Carter, Akron safety director that automobiles equipped with balloon tires travel from 10 to 25 per cent faster than their speedometers indicate. Mrs. McCreary was the wife of R. B. McCreary, rubber broker with the H. J. Adams company.

Rubber experts declare that there is a slight variation in the speedometer on cars where oversize tires are used, but not enough to warrant a change of speedometers. City police and officials have inaugurated the boulevard stop system which requires all motorists to stop before crossing or turning into a main thoroughfare.

Among those recently arraigned and fined in the Akron municipal court on the charge of violating the speed laws were F. A. Seiberling, president of the Seiberling Rubber company, Barberton, and Stacy G. Carkhuff, secretary of the Firestone Tire & Rubber company.

McLean Plant Appraised

The property of the McLean Tire & Rubber Company, East Liverpool, Ohio, has been appraised by the appraisers appointed recently by the common pleas court, at $126,727.24. The land owned was valued at $5,000, the buildings and equipment at $118,745, raw material, goods in process of manufacture, work supplies and manufactured products, $2,982.24.

Patent Attorney Leaves U. S.

Charles S. Jones has announced that he has terminated his connection with the patent department of the United States Rubber Co., and has resumed the general practice of patent and trade mark law. His new office is now associated with that of Messrs. Briesen & Schrenk, 50 Church St., New York City.

Du Pont Perfects Accelerators

The Dyestuffs Department of E. I. du Pont de Nemours & Company, Wilmington, Del., announces the development of a complete variety of rubber vulcanization accelerators. These organic chemicals are a logical outcome of the establishment of the dyestuffs industry in this country during 1917 and are the result of three years' work by research and engineering chemists. The company has also equipped a rubber laboratory for technical service which is staffed by experienced rubber chemists.

Two New Tires Announced

Akron rubber companies recently announced two new tires. The Goodyear Tire & Rubber Co. has perfected its "Supertwist" cord balloon tire. The company claims that the life of this tire has been doubled by the greater stretching qualities of the cords used. It is stated that the new fabric is manufactured from cotton grown by the company on its own plantations.

The feature of the new bus tire announced recently by the Miller Rubber Co. is also said to be the fabric used. The company states that the tire is built for combined heavy loads and high speeds. Miller officials say that heretofore truck tires have been built for heavy loads to be carried at comparatively slow speeds but that the rapid development of the bus has made necessary a tire to carry loads at high speeds. The new Miller tire has not been named.

Automobile Production Declines

WASHINGTON, D. C. July 23.—The Department of Commerce announces June production of automobiles, based on figures received from 207 manufacturers, 99 making passenger cars and 137 making trucks (29 making both passenger cars and trucks). Data for earlier months include 14 additional manufacturers now out of business, while June data for 7 small firms were not received in time for inclusion in this report. Figures on truck production also include fire apparatus and street sweepers. Figures follow:

AUTOMOBILE PRODUCTION

	Passenger cars		Trucks	
	1923	1924	1923	1924
January	223,822	287,353	19,732	*28,925
February	254,782	336,374	22,173	*31,153
March	319,789	348,356	35,284	*34,118
April	344,661	337,045	38,085	*36,156
May	350,460	*279,447	43,730	*33,411
June	337,442	217,927	41,173	27,863
July	297,413		30,692	
August	314,431		30,872	
September	298,964		28,578	
October	335,041		30,139	
November	284,939		28,073	
December	275,472		27,762	

*Revised.

RESTRICTION OFF IF DUTCH REFUSE TO COOPERATE

A Singapore item states that a resolution of a number of banks and dealer associations was passed in June asking the government to abolish restriction if the Dutch failed to cooperate immediately. The complete report follows:

"Representatives of Chinese Banks, the Rubber Dealers' Association, Produce Exchange, Rice Dealers' Association, rubber manufacturers and dealers, planters and trade guilds unanimously resolved that it is necessary to urge the Government to abolish restriction, failing immediate Dutch cooperation, and that a petition to this effect be presented to the Governor, also that representatives of the Chinese Chamber be authorized to second and support the motion to be submitted by the Perak Chinese Chamber at Ipoh, that restriction be abolished if the Dutch refuse to come in."

MAY TIRE PRODUCTION SHOWS SLIGHT DECREASE

The report for May of the Rubber Association of America, representing the bulk of that industry in the United States, shows a total production of 3,038,586 tires compared with 3,307,478 for April and 3,659,986 for May, 1923 of which 564,030 were balloons. Shipments in May aggregated 2,769,970. This reflects a margin in production over shipments of 268,616.

The inventory of inner tubes at the end of May was 8,761,812, which compared with 8,627,343 for April indicates an increase of 1.5% and with 9,292,223 for May, 1923, shows a decrease of 5.7%.

Balloon tires on hand May 31st totaled 569,624, while solid tires were 188,345 against 212,419 for April, a decrease of 11.3%, and 268,323 a decrease of 29.8% over May 1923. Production figures for solid tires were 50,145, a decrease of 27.9% compared with 69,534 for April and a decrease of 35.1% on the May 1923 figures of 77,288. Shipments of solid tires reached 49,796, which contrasted with 58,486 for April reveal a decrease of 14.9% and with 71,114 for May, 1923, a decrease of 29.9%.

Batavia Factory Sold

The factory buildings of the Batavia Rubber Co., Batavia, N. Y., were recently sold to the Doehler Die Casting Co., of Brooklyn. The other assets of the rubber company, consisting of machinery, tools, and equipment were sold on July 21.

Title of Rubber Show Changed

Chester I. Campbell, directer of the rubber show that is to be held in Boston, Mass., Oct. 10 to 17, 1925, recently announced that the title had been changed from World's Rubber Exposition to World's Rubber and Tropical Products Exposition.

Estate of V.D.L. Pays Debts

The Estate of the Van Der Linde Rubber Corp., Ltd., 142 Weston Road Toronto, Ontario, announced that a second and final dividend of 4½% has been declared and will be paid to all creditors. Receipts of $1,693.72 are to be divided among the creditors, according to E. J. Howson, trustee.

Form Industrial Equip. Co.

G. G. Crewson and A. E. Smith have formed the Industrial Equipment Company of Buffalo, New York, for the purpose of sales and consulting engineering. Mr. Crewson was formerly associated with E. I. du Pont de Nemours & Company and with the National Aniline and Chemical Company. Mr. Smith was formerly associated with the Solvay Process Company and National Aniline and Chemical Company.

Gold Mines May Use Rubber

It has just been announced in London that the largest mining groups of the Rand are actively inquiring as to whether it is possible to secure sheets of crude rubber somewhat similar to sole crepe in special lengths and with definite ridges or grooves. Negotiations commenced in Johannesburg in 1922, when J. S. M. Rennie of Singapore met the heads of the interested groups, but since then have dropped from notice. However, inquiries are once again being actively pursued.

The purposes for which these sheets of rubber are required are for lining launders and covering the tables which collect the concentrates in the gold mining industry. Should this potential new use for rubber be ultimately found to possess advantages and spreads throughout the gold, platinum and tin-mining industries for dredge and other launders, riffles, and wash boxes it will cause an enormous increase in the consumption of rubber and offer enterprising firms scope for specialization in the preparation of the required shapes and sizes.

Receiver for Erie

Francis B. Quinn, of the law firm of Brooks, English and Quinn, was named receiver on July 18 for the Vulvan Rubber Company, Erie, Pa., by Judge U. P. Rossiter. Petition for a receivership was filed for the company by Harry L. Moore, counsel for the corporation. The court at the same time issued a rule to show cause why a permanent receiver should not be appointed, returnable August 4.

Edward Heuer, secretary of the company, stated that the receivership proceedings were not instituted with any idea of winding up the company's business, but merely because certain creditors had instituted suit prior to the perfection of constructive reorganization plans which have been going forward for some time; that the receivership will give those interested in the company an opportunity to carry out their plans and that the plant will continue to operate and in the very near future will be financed upon a sound and permanent basis.

NEW CALENDER MOTOR ANNOUNCED BY G. E.

A new type of motor has been developed, the only self-contained, adjustable speed, alternating current motor with shunt characteristics on the market. It has been designed to cover the wide field of applications requiring such characteristics, an inherent feature being that its change of speed is only moderate as compared to the change of load.

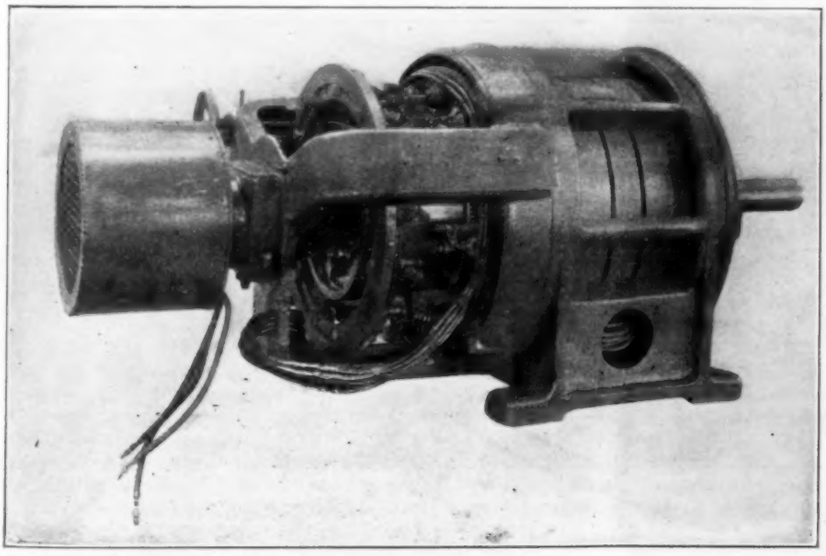
The new motor, known as type BTA, is made by the General Electric Co. and is available for use on three-phase, 60-cycle circuits at 220, 440 or 550 volts. It is commonly built for a three-to-one speed range and is rated on a constant torque basis, with horsepower output directly proportional to speed. Motors for other speed ranges and frequencies as well as for two-phase service will also be made.

The motors now being marketed range from 3/1 horsepower, 1650/550 r.p.m., to 50/16.7 horsepower, 1250/415 r.p.m., the lower horsepower sizes being six-pole machines and the larger, eight-pole. The motors are designed to be thrown on the line with brushes in low speed position and may be connected in the same manner as any three-phase induction motor. Speed is varied by brush-shifting, accomplished by the use of a handwheel, or by a pilot motor shifting the brushes through a gear train and operated by push-button control or by an automatic regulator. The brushes may also be shifted manually from a distance by using a handwheel bracket with chain and sprocket.

With brushes at low speed position, this type of motor is designed to give from 150 to 200 per cent of normal torque at starting with 125 to 160 per cent full speed line current. The maximum torque at low speeds is from 150 to 200 per cent of normal torque and increases for the high speed position to from 300 to 400 per cent of normal torque.

The efficiency of this motor remains nearly constant over the greater part of the speed range, but is somewhat lower at very slow speeds. Power-factor is very high when the motor is running at high speeds. At synchronous speed, the power-factor is about the same as that of an induction motor of similar rating. By using a secondary resistance and contactor, a creeping speed of half the listed minimum speed may be obtained.

Among the applications for which the BTA motor is recommended by the manufacturer are centrifugal compressors and pumps, cotton and wool spinning frames, stokers, and tube machines and calenders in rubber factories.



New General Electric Co. BTA Adjustable Speed Brush Shifting Motor.

Receiver for Howe Rubber

Lack of funds was given as the reason for the failure of the attempt to operate the plant of the Howe Rubber Corp., New Brunswick, N. J., by the recently appointed president, George M. Griffith. The result has been the announcement of the appointment of Charles D. Roth as temporary receiver at the request of stockholders and creditors. Assets are set forth as $797,975 and liabilities, $1,336,-672. Mr. Griffith is working on a plan of reorganization for submission to stockholders.

To Sell Tire Factory

Trustees for the owners of the three-story brick building on Second St., Carthage, Ill., which was built several years ago to house the Armored Inner Tire Co., met recently. The possibility of the sale of the building, which has been estimated to be worth $50,000 was discussed. It was brought out that as the building stood unoccupied it was deteriorating in value and that efforts should be made to dispose of it. Trustees were authorized to negotiate a sale.

GERMAN HOSTILITY SHOWN TO AMERICANS SAYS ALLEN

A marked hostility toward Americans on the part of the poorer class of people in Germany was noted by Hugh Allen, manager of the department of publicity of The Goodyear Tire & Rubber company, who has just returned from a six weeks business trip to Europe in the interests of the newly organized Goodyear-Zeppelin company. The Germans with whom he had business dealings were cordial enough, according to Mr. Allen, but hotel keepers charged Americans especially high rates and the poor classes have not yet succeeded in ridding their systems of the policy of hate.

The German system of finances is improving, he believes, and he saw no evidences of suffering. He reports that everybody in Belgium, France and Germany seemed to be working. Every available square foot of ground was being cultivated, even the ground along the railroad right of way.

Because of the high duties imposed American made automobile tires have but little chance to compete with the British made Dunlop and the French made Michelin tires. In Germany no American tires are sold.

Work Started on Airships

The Goodyear Tire & Rubber Company has already started to fulfill the largest order for dirigibles since the war when the United States Air Service put in a call for six dirigibles and spares amounting to nearly half a million dollars. The first ship will be built within six months. Three dirigibles will be of the T.C.1 type which is 196 feet long and carries a crew of six men. Goodyear has constructed 95 dirigibles, including those built during the war.

Bloch Promoted by Mohawk

Ray E. Bloch, who has been with the Mohawk Rubber Company since its organization thirteen years ago, was promoted from assistant treasurer at the July meeting of the board of directors to fill the vacancy caused by the resignation of W. J. Cope. B. J. Brooks, credit manager of the company will also serve as assistant treasurer. The directors authorized the purchase of new equipment in view of increasing the production of Mohawk tires.

MacArthur Joins Handy

William MacArthur has announced that the partnership of MacArthur & White, Inc., has been dissolved and that from now on he will act as Akron representative for J. L. Handy, crude rubber broker of 50 Broad St., N. Y. City. A. R. White is still engaged in the real estate business in Los Angeles, Cal.

Mrs. Robert B. McCreary

Mrs. Robert B. McCreary, wife of R. B. McCreary, Secretary and Treasurer of H. J. Adams Co., Akron, Ohio, was killed in an automobile accident in Akron on July 19.

Rubber Exhibits Seen at Wembley

Displays Range from Prosaic Commodities to an Old World Garden Containing Rubber Lawns and Flowers

(Special to THE RUBBER AGE)

THE interest manifested in the rubber exhibits at the Empire Exhibition now being held at Wembley Park, London, has been so great that we recently wired our British correspondent to send us a description of the most important exhibits. We have published several articles on this exhibition in previous issues but the following account gives additional details of the interesting articles shown by the various companies:

RUBBER bath sponges made by an entirely new process, which, while ensuring a sponge equal in fineness and softness of texture to the natural Turkey article, absolutely eliminates the possibility of becoming slimy. They are guaranteed not to crumble or disintegrate and the makers go so far as to claim that hot water and soap actually improve them.

* * *

The "Watermount," an air-filled rubber horse to ride when sea bathing provides a novel holiday diversion for individuals, and games, and races, etc. Made of thick rubber and weighing approximately 5 lb., it is shaped like a horse and is propelled by the hands and steered by either hands or feet. The rider easily acquires his balance by mounting in shallow water, after which he can safely move off into water of any depth. Inflation involves no trouble and can be done either by mouth or pump.

A tire manufacturing concern which gives no mileage or other guarantee with its tires and advertises: "Under no conditions do we accept any responsibility for consequential damage resulting from any defect in our tires, latent or otherwise." The company, however, is "always prepared to consider any complaint provided the tire is returned *carriage paid,*" when it will, if found defective in material and workmanship, replace the tire at a charge in proportion to the service rendered!

Certainly this firm is safeguarding itself against fraudulent claims, and its method is quite new to the tire trade, but how would the average autoist feel toward this special make of tire when out to purchase a new set? Better to risk the chance of a little loss and invite new business rather than frighten it all away by too much safety first!

* * *

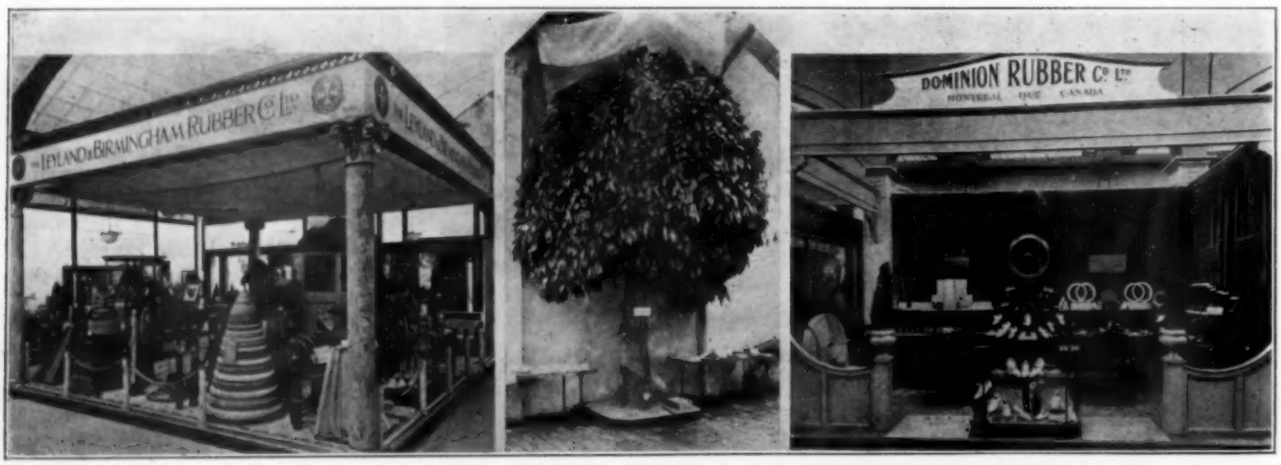
A new type of hot water bottle reinforced with a special extra strong canvas to prevent bursting.

BAT handle grips for tennis, cricket, badminton, etc., made on an entirely new patented principle, the result of numerous careful experiments. The grips are claimed to have a perfect gripping surface, to minimize shocks and the arrangements of the corrugations is designed to form air passages, which tend to keep the hand cool and eliminate the stickiness caused by perspiration.

* * *

A new "Air-sprung" tire, not a balloon tire, but claimed to have all the luxurious riding of the balloon type without its disadvantages. It is constructed up to 50 per cent greater in cross section than ordinary inflated tires to carry a similar load, and has three treads which are automatically variable in effective width according to the load, speed, road, and type of chassis used. The upstanding center tread "air-springs" the car under minimum loads, while the right and left supporting treads come into road contact when necessary or when carrying a heavier load or an overload.

CHAS. Macintosh & Co., Ltd.,—the firm that gave a new word to the English language—are celebrating their hundredth birthday. The firm was born in 1824 with Charles Macintosh's discovery of a secret that nature had denied to scientists for nearly two centuries—that rubber was soluble in coal tar naptha. Now manufacturing a comprehensive line



Some of the Rubber Exhibits to be Seen at the British Empire Exhibition

In the center is shown a growing rubber tree being tapped. Crude rubber produced by this tree during the exhibition may be seen on the tables on each side. At the right is the exhibition of the Dominion Rubber Co. (Canadian Branch of the United States Rubber Co.) The booth of the Leyland & Birmingham Rubber Co., Ltd., (at left) contains many representative products manufactured by this company.

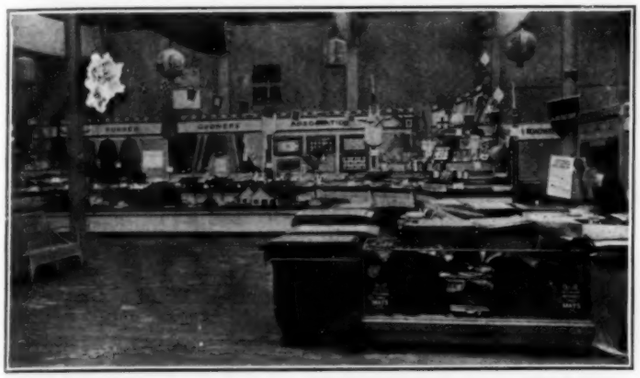
of rubber products, they still specialize in macintosh and waterproof garments and fabrics for all purposes.

* * *

A firm manufacturing 500 ft. lengths of hose pipe as a standard. Although quite common in America, this is an entirely new departure for the British trade, which has never previously produced lengths of over 250 ft. as a regular line.

* * *

"All-crepe-rubber" sports and bathing shoes, both uppers and soles being of this material. The uppers are in many artistic colors and are frequently overlaid with strips of crepe in a contrasting shade.



The Attractive Exhibit of the Rubber Growers' Association of London

An improved hot water bottle, sturdily constructed to give years of efficient service. Its patent neck does away with the washer, the stopper screwing down onto a solid rubber foundation. The neck is, in effect, part of the bottle itself, thereby ensuring complete freedom from leakage.

* * *

Another new type of road paving block, the rubber surface of which is attached to a specially blended concrete foundation. The exhibitor admitted this block was produced simply as an expertment and was not unduly optimistic as to its practical qualities.

NATURAL-COLORED all-rubber flowers at the Malaya Pavilion. For carnations and fleshy-leaved flowers such as tulips, this material is a great improvement on tissue paper or any other fabric which has previously been used. The petals are in dyed crepe and the leaves in smooth green rubber, the stems being reinforced by a stiff wire center. Only by touching could the carnation be distinguished from the genuine flower, while the tulip was almost equally as good. There is an excellent chance for profitable development of this new line. A stock of crepe flowers would make every house as bright in winter time as in midsummer.

* * *

Office chair and typewriter pads of pure plantation rubber. Said to be more durable, less liable to slip, and an all round general improvement upon those made of felt.

An elastic sheathing for golfers. Slipped on the hand, it prevents perspiration from reaching the club handle, and thus eliminates danger of the grip slipping during a drive.

* * *

All-rubber spinning tops in a variety of new shapes. Said to be an improvement upon those made of wood.

* * *

Natural crepe rubber grips for bicycle handlebars.

* * *

A novelty in the way of a model rubber shop window, perfectly dressed and designed, and with everything in miniature. Duplicates of some of the articles have been supplied to the famous Queen's Doll's House in the Palace of Arts at the Exhibition, which has been constructed to represent the perfect house with all modern conveniences.

A small museum as an additional feature to the ordinary exhibit of miscellaneous articles of a well-known firm. There is a fine show of rubber mats, over 70 years old—fine specimens of early rubber molding. Very interesting also are the old specimens of rubber boots, shoes, and toys, made by the natives of South America out of Para rubber. These represent the original form in which raw rubber reached Europe. The exhibits of the earliest attempts to attain artistic effects with vulcanized rubber are another minor attraction. Most interesting of all, however, is the experimental masticating machine or "Pickle," the first of many machines invented by Thomas Hancock for the manufacture of rubber and kept a secret for many years. The same machines are now in use on a much larger scale. Experimental rubber mixing rolls are also shown. They were worked by hand and made 74 years ago. A copy of the original edition of "Origin and Progress of the India Rubber Manufacture in England," published in 1853, is also on view.

* * *

An oil hose, 30 ft. in lenth, fitted with spigots and flanges, which will stand up to 200 lb. pressure and is impervious to oil and gasoline. It is exactly similar to those recently supplied to the Anglo-Persian Oil Co.

A native hut, the stand of the Rubber Growers' Association, containing an exhibit illustrating the growth, preparation and marketing of plantation rubber.

* * *

The stand of the Leyland & Birmingham Rubber Co. (as illustrated). Contains a good display of their manufactures. What first strikes the eye is the full-sized grizzly bear, representing one of the firm's trade marks, which, like the Laocoon and his serpents, seems to be endeavoring without success, to rend the length of rubber hose. This hose is their long-length molded hose—the first to be made in this country by the firm's special methods.

IMPOSING stand of the North British Rubber Co., largest rubber manufacturers in the British Empire. It is at the entrance of the rubber section and is surmounted by a picturesque archway. The exhibit proper is reached by way of a beautiful old world garden, the whole of which has been

"Watermount," a Pneumatic Rubber Novelty Exhibited at Wembley

created out of rubber alone. A winding path done in crazy paving stone (the illusion that it is stone is not dispelled until one walks on it and discovers the softness and resiliency of rubber) divides two lawns of green-dyed crepe rubber. In the center of each lawn is a bed of brilliant rubber flowers growing in what is apparently rich, dark soil, but in reality is finely ground-up crude rubber. Two ornamental figures stand on each lawn, and complete a very successful illusion.

* * *

Rubber section of the Malayan Pavilion. It forms an imposing and attractive demonstration of the whole evolution of rubber from the planting of the seed to the finished product. Of particular interest is the rubber tree with the latex actually flowing. Specimens of all the implements and machinery involved in its collection, coagulation, preparation for export, and packing are strikingly demonstrated. An exhibit of "rubber diseases" shows how the bark is affected by a variety of pests. A pyramid of block rubber in the center of the section represents the world's supply of rubber. The top five rows are Malaya's share of production. The bottom is

(Continued on Page 343)

The Problem of Future Supplies of Rubber *

Over-Production Now is the Consequence of Under-Production of the Past—Cheap Rubber Predicted for Some Years to Come

By P. J. Burgess

Late Chairman, Rubber Growers' Association

THE position of rubber at the present time is one of considerable interest and importance, not only to those whose business brings them into direct contact with this raw commodity or who are directly concerned with the fluctuations of the market, but also to all who take an interest in raw commodities generally, and to those who, in a more academic manner perhaps, are students of commerce and economics.

The raw-rubber market at the moment presents a clear picture of the working out of an experiment in a novel form of control. Production is being regulated by means of a governmental control of the amounts exportable from the countries of origin. Without going at length into the details of what is known as the Stevenson scheme of restriction of exports, the principle underlying it can be stated in a few words. The control applies to Malaya and Ceylon, and for each rubber estate or producing unit an estimated capacity to produce, or its standard production, is arrived at, and all estates are allowed to export a definite percentage of their standard production at a nominal rate of duty per pound.

The percentage depends upon the average price of rubber in the London market during certain defined periods, and at the present time is fixed at 60 per cent.

As the average price of rubber in the London market rises, so the percentage of standard production allowed to be exported at the minimum duty is increased; and as the price of rubber in London falls, so is the exportable allowance decreased. The regulations say nothing about the actual production or harvesting of rubber on the plantations, but the deduction that production will follow the same general course as exports and sales is reasonable and has been proved to be the fact.

This scheme of Government control of a producing industry was not a war measure, nor one devised for revenue purposes, but was initiated at the request of the producers themselves, who were in a perilous condition owing to over-production and consequent collapse of the selling price of their commodity to below the cost of production.

The primary success of a scheme of this character must depend upon the extent to which all producers can be brought into the net of its operation. It is clear that no such control could be forced upon producers in territory outside the British Empire, and as about 30 per cent of plantation rubber is located in Dutch territory, and in addition there is some wild rubber produced in other parts of the world, many critics predicted that the scheme would be broken by these producers taking advantage of their fellow-cultivators whose output was controlled, riding on their backs, and fattening by the process, eventually crushing by their increasing weight those who had carried them to safety. British growers in Dutch territory have voluntarily and loyally subjected themselves to the same discipline as their fellows in British territory under control, but Dutch growers, obstinately refusing to have any share in the burden of restriction, have taken full advantage of their position.

This was not unexpected. In spite of this obstacle to success, the result of the scheme has been to reduce the amounts of raw rubber placed on the market, and, assisted by the good consumption in the United States in 1923, there has been a steady depletion of rubber stocks in the world. The probable reduction in 1923 was somewhere between 45,000 and 50,000 tons, the uncertain figure in this computation being the reduction of stocks in the East.

Estimates which can be relied upon indicate a further reduction of stock this year of some 50,000 tons and the establishment of a stock position which will be all in favor of the producing side of the industry.

This result is what the rubber-producing industry desired, and has been brought about in face of a potential production from existing areas which, if allowed full play, would have actually increased the stocks in 1923 and again in 1924. To

*From the Trade and Engineering Supplement of the *London Times*.

Mr. Burgess' Opinion Confirmed by Rubber Association Forecast

Those of our readers who were interested in the review published in our July 10 issue of an article by Harry N. Whitford, chief of the Crude Rubber Section, Department of Commerce, will remember that this article was based on an analysis and forecast recently made for the Rubber Association of America by Ray B. Prescott. In this forecast it is predicted that by 1930 consumption will exceed production.

For the year 1930 consumption of rubber within the United States is computed to be 504,000 long tons; consumption outside the United States, 199,000 tons; but production only 703,000 tons. And many keen observers believe that it is likely that European consumption will exceed the 199,000-ton figure.

In view of the facts brought out in this forecast of the Rubber Association, which has not as yet been officially released for publication but nevertheless has appeared in other magazines, the opinions of P. J. Burgess, former chairman of the Rubber Growers' Association of London, are well worth careful study.

Mr. Burgess believes that the development of the motor vehicle in civilized countries other than the United States will absorb all the rubber the world is now able to produce, and the check in planting brought about by restrictive measures will have the inevitable result in a shortage of the supply within the next decade. Although it is his opinion that the dominance of the motor as an absorber of rubber is not likely to be broken, other uses will maintain their present proportion of the total consumption. The use of rubber for new purposes is surely to be extended.

stop the further reduction of stock it is only necessary for consumers to support the London market and, in order to obtain additional output of rubber for legitimate trade, to maintain the price of rubber at between 1s. 3d. and 1s. 6d. This price gives a reasonable return on capital to producers. It is less than half the price consumers have been accustomed to pay in the past. Considering that other raw products show increases of price, surely no hardship can be inflicted upon consumers if raw rubber remains the exception and sells at less than consumers were accustomed to pay until the last two years.

The justification for Government interference in an attempt to regulate or control an industry is found in the peculiar conditions existing during the past few years. The dislocation of all industry and markets consequent upon the war has, in other cases, induced exceptional measures to meet exceptional needs, and one is not obliged to go beyond the domestic hearth where the Rent Restriction Act is functioning to see how far and fast we are moving and how remote we are from the old idea that industry and commerce must be left severely alone to manage their own affairs and settle all troubles and difficulties by the time-honored process of a financial fight.

Had the rubber industry been left to work out its own salvation in 1922, it is certain that the world would now be poorer in resources by the loss of effective rubber producing acreage, a process which was commencing and would have continued at an increasing rate during the financial struggle for existence among plantations of rubber for a number of years, until supply had been reduced to equal demand by the destruction and reversion to jungle of thousands of acres of rubber.

The working of the law of survival of the fittest in the domain of economics as a means of adjustment of the supply and demand does not make allowance for future needs. It is a balance struck at the moment with neither forecast nor retrospect.

Outlook for the Future

A firm conviction that the world's demand for rubber is progressive and that the full capacity of every acre now in existence will be needed in the next ten years is the justification for having gone outside the methods of economic tradition in preserving intact the potential sources of supply, not for the benefit of the present owners nor the British Empire alone, but for the world of advancing civilization.

It may well be asked how it has happened that the raw-rubber industry has come to this condition of over-production and what prospect there is of the restoration of a more healthy balance of supply and demand. Both these questions are natural enough, and to each a complete reply can be offered.

Over-production now is the consequence of under-production in the past. The rubber boom of 1909 and 1910 was the child of under-production then and is the parent of the rubber slump of 1921 and 1922. The rubber tree takes ten years to come to maturity, and the swing of the economic pendulum has a period which approximates to it. Over-production was to some extent held in check by the unforeseen and extraordinary development of the motor and the consequent need for rubber tires. Following the improvement in the quality of tires during the last two years, which gives nearly treble the former mileage, consumption was finally beaten in the race, production won the day, and the world's reward has been —starvation.

The absence of reliable statistics of planted acreage accentuated the difficulties of forecast, and the independence of planting units made concerted policy of planting scarcely possible.

What are the prospects for the industry? For some years to come there must be cheap rubber. As long as the restriction scheme exists and is necessary rubber cannot average much over 1s. 3d. per lb. Neither can it remain long under 1s. The consumption increases annually, and on the average increases by 10 per cent a year. At that rate of increment production should be at full capacity in five or six years' time.

The United States has shown what motor concentration is possible in a modern civilized state, and it is not reasonable to assume that the United States, with only 10 per cent of the world's population, will continue to use over 80 per cent of the world's motors.

But the development of the motor for transport in the other civilized countries will absorb all the rubber the world is now able to produce, and the check to planting which is now at work will have its inevitable result in a shortage of supply within the next decade.

Extended Uses

Meanwhile the use of this commodity in other directions is rapidly being extended, and though it is not likely that the dominance of the motor tire as an absorbent of rubber will be broken, we shall see the other uses maintaining their present proportion of the doubled total consumed.

The guarantee of ample supplies for the future should give encouragement to the manufacturing side of the industry to develop new features, and in the event of any outstanding new process or novel use for rubber the suggestion of a long-term supply of raw rubber at suitable price for the purpose would meet with a large measure of support from producers.

From the foregoing analysis it would not appear that the statistical position of raw rubber is unfavorable for either buyers or sellers. More is not now being produced than can be used, nor is more likely to be required in the next few years than can easily be supplied. The one thing necessary to bring satisfaction to both producers and consumers would rather appear to be some mechanism which can adjust the price obtained to such a figure as will be fair and reflect the stock position more accurately.

We seem to be very much in the condition of that class of machine which has both a coarse and a fine adjustment. The coarse mechanism in the rubber machine is the Restriction Act which has brought the demand and the supply within reasonable approximation to each other, but without some finer adjustment the price, which represents the work of the machine, will still fluctuate too widely to satisy and give security to both parties.

The idea is growing that this fine adjustment can be supplied by a regulation of the conditions of selling so as to conform more closely to the existing conditions of buying. For each first-hand buyer there are twenty first-hand sellers, unorganized and in many cases without the financial reserves requisite for dealing with a sensitive market. Some form of combination or agreement between sellers is undoubtedly called for, if their position is to be strengthened in the fine price adjustment of the balance between supply and demand.

Rubber Exhibit Seen at Wembley

(Continued from Page 341)

the rest of the world's share. The models of rubber estates are extremely picturesque with novel lighting effects.

HIGHLY instructive display in the Ceylon Pavilion. The exhibits here differ from those in other sections and are, in fact, absolutely unique. There are fine specimens of smoked sheet, latex crepe, scrap crepe, and curly scrap. Bark scrap is an exclusive exhibit of exceptional interest. Special mention must also be made of the wonderful display of rubber flowers—quite a new departure in miscellaneous rubber novelties and quite different to those previously mentioned as on view in the Malaya Pavilion. In this case greatest attention has been paid to the production of artificial roses, and the result is all that could be desired.

Considerable enterprise has been shown in this particular section, which opens up a big field for other novelties. Rubber lamp shades are there, too, designed to all shapes and colors, and the shading effect of rubber is certainly very pleasing and more durable than shades of other manufacture. A very fine display of crepe soles has attracted marked attention from numerous golf and tennis players. Rubber paving, flooring, matting are exhibited in an extensive range of colors, hitherto hardly thought possible with rubber. There are even pin cushions and fancy cigarette boxes in the unique miscellaneous collection, which forms a fitting conclusion of a tour of the most wonderful collection of rubber exhibits probably ever displayed.

VULCANIZATION & ACCELERATORS

By Andre Dubosc

PART 1 (*CONTINUED*)

Theory of Vulcanization

In This Installment Dubosc Discusses the Application of the Victor Henry Law—Bart and Weydert on Reversibility—Skellon Theory on Movement of Sulphur—Loewen Two Stage Theory.

[In the previous installment of Mr. Dubosc's series, the similarity of the theories of Bysow and Ostwald on vulcanization were given. Bysow has claimed that vulcanization is not accompanied by the evolution of heat and Dubosc takes issue with this belief and states that this theory is inadmissable. The Kindacher and Hendricksen physical theory was then explained with a number of facts upholding their convictions. Dubosc then summed up the arguments of the adherents of the chemical theory as opposed to the physical theory. The Pellier theory was then explained, followed by that of Victor Henry. In this installment Dubosc attemps to show that the law of Henry on the distribution of a dissolved substance is inadmissable.—EDITOR.]

IS the law developed by Victor Henry applicable to the case? Kuster has shown that the rubber molecule absorbs the ether that is contained in the aqueous solution, without following the Victor Henry law. This phenomenon is subject to another law, which is more complicated.

Another important question is, does this exception to the law developed by Victor Henry apply to all solutions that come in contact with the rubber? The experimenter, Bysow, tried to establish this relation of distribution for the case of a solution of chloride of sulphur in benzine. He found that the phenomenon of adsorption of chloride of sulphur in a benzine solution was independent of the absolute quantities of the chloride, and that only the concentration of the solutions played any part in the phenomenon. Adsorption equilibrium is likewise independent of the absolute quantities of the chloride of sulphur and benzine solution. In the case of highly concentrated solutions, equilibrium is not attained until quite a long time has elapsed, longer than is necessary for the attainment of equilibrium in the case of dilute solutions.

It is stated that in the cold the solutions of sulphur in benzine cannot effect the vulcanization of the rubber. This is explained by the fact that only those substances which possess the power of lowering the surface tension of the solvent can be absorbed. Sulphur is not one of those substances, for instead of decreasing the surface tension of the benzine, it increases it. Of course it is possible to make the assumption that there are other solvents, the surface tension of which sulphur possesses the power of reducing.

Mechanism of Vulcanization Phenomena

After all these points were explained by the author of this vulcanization theory, Pellier went into details to discuss the mechanism of the process of vulcanization and the various phenomena which are attendant upon it.

In accordance with the state of its polymerization, it is understood that the gum may be found in the condition of either a plastic, pasty mass, or in a solid, elastic condition. Each of these states of the rubber gum has its own corresponding viscosity. The elastic part of the gum has been pectinized, either in part or in its entirety. This is brought about by various causes, such as, oxidation, the action of protein matters at the moment that coagulation takes place. The plastic portion of the rubber mass remains in the state of a non-pectinized colloid.

When flowers of sulphur are added to the rubber mass in the cold, no action or only a very slight, insignificant one is effected, because that metalloid at ordinary temperatures is insoluble in the plastic rubber mass, and for this reason the contact that ensues between the two substances is imperfect. When the mixture of rubber and flowers of sulphur is heated, on the other hand, depolymerization of the plastic gum is accentuated to the point that the mass is rendered fluid. This in accordance with observations made by Delft.

In other words the plastic part of the gum may be said to be effused or extravasated in a certain sense from the dilated particles of elastic rubber, which likewise undergoes a partial depolymerization and tends to become plastic. At a temperature of 120 degrees C, sulphur, which has been reduced to a liquid mass by fusion, easily penetrates into the mass of the rubber gum. The higher the temperature, the more accentuated is this solution of the same in the mass of rubber.

Effect of Sulphur on the Plastic Rubber

When the method, which was developed by Weber, is used in preparing totally depolymerized rubber in the medium of an inert gas, for example carbon dioxide, it is stated that at a temperature of 120 degrees C a certain proportion of sulphur dissolves in it and that the mass of rubber coagulates after a certain period of time has elapsed. In cooling the greatest part of the sulphur precipitates. The plastic rubber, while it dissolves a certain portion of the sulphur which it fixes, then acquires the properties of a pectinized colloid, and, as in the case of certain others, it becomes insoluble in the ordinary solvents.

Pectinization a Polymerization

Hence pectinization should always be considered as a polymerization of the rubber, which is brought about by the fusion of a number of rubber molecules, which are joined together by means of a number of atoms of sulphur. What it does is to fix the plastic rubber to the elastic rubber, the combination forming a compact, tenacious mass, which is the same as soft, vulcanized rubber.

If the heating time is prolonged and the temperature is raised above 140 to 145 degrees C, then the elastic part of the rubber mass tends in turn to become plastic. Its contact with the molten sulphur becomes very intimate, and it absorbs the sulphur, combining with it to give a chemical compound and finally resulting in a solid, strong mass, which is known as ebonite.

To sum up: If it is considered that rubber is susceptible

to becoming plastic under the influence of heat, that colloids, when subjected to heating or to contact with foreign substances, are susceptible of pectinizing, the conclusion may be arrived at that vulcanization is a pectinization of colloidal rubber, which is brought about under the double influence both of heat and of molten sulphur.

The same phenomena will then take place with rubber that occur in the case of other colloids. In other words the dissolved substances are adsorbed. In this example, that is the example of rubber and molten sulphur, the latter is dissolved in the rubber, and the result is that the molten sulphur depolymerizes or plasticizes the rubber, when it comes in contact with the colloid which in this case is elastic rubber. What happens is adsorption through osmosis.

Adsorption of Sulphur

The quantity of sulphur adsorbed, that is the absolute weight of the same, is a function of the concentration of the liquids, at least up to the point of a condition of equilibrium. which is established between the dissolved proportions of the sulphur and the amounts that are adsorbed. Moreover, Bysow has shown that between the sulphur that is added to the rubber mass and the sulphur that combines with the molecule of rubber a constant ratio exists, which is independent of the quantity of the former, on the assumption that all the factors which have any influence on the vulcanization remain the same.

As far as the pectinization itself is concerned, it is brought about by a chemical action which gradually develops, acting in the nature of a polymerization, a fusion of the substance dimethyl-cyclo-octadiene whose free valencies are saturated with sulphur.

This mechanism of the vulcanization process can be used to explain the vulcanization of rubber when it is carried out by dipping the rubber mass into a bath of molten sulphur, as well as vulcanization of rubber by heating a mixture of the gum and of sulphur to a temperature of 145 degrees C. It is also applicable to vulcanization of rubber by all other substances in addition to sulphur, as for example those that were mentioned by Ostromylenski. The more plastic rubber is contained in the gum, the more rapid will the vulcanization be. Furthermore it can take place at a low temperature.

The Bary and Weydert Theory

According to these chemists the vulcanization of rubber is a reversible phenomenon. They extracted all the free rubber that was contained in a sample of the vulcanized gum. This was done by boiling the rubber with acetone for a considerable length of time in a flask provided with a reflux condenser. After the extraction is complete, the rubber was heated for a period of eight hours at a temperature of 145 degrees C., in an atmosphere of carbon dioxide gas. Then the sample of vulcanized rubber was subjected to another acetone extraction in the same manner as described. The rubber lost further quantities of sulphur. This treatment, which comprised alternate heatings and extractions with boiling acetone, was repeated a number of times, and each time that it was performed, another quantity of sulphur was removed from the vulcanized rubber sample. But the total weight of the sulphur that was removed from the vulcanized rubber in this manner did not equal the weight of the sulphur that was originally contained in the vulcanized rubber sample, after the first extraction was made. The reversibility of the vulcanization process is therefore not complete.

Although this experiment may not be considered as entirely conclusive, Bary and Weydert have none the less shown that the vulcanization of rubber was a reversible phenomenon, or at least reversible to a partial degree. These observations may be considered as supporting the vulcanization theory which has been developed by Ostwald, but they are not at all in accord with the theory of vulcanization developed by Weber.

The Skellon Theory

This theory is principally concerned with the movement of the sulphur in the mass of rubber. Skellon placed two sheets of rubber one over the other. These sheets contained different percentages of sulphur. Then he subjected the rubber to heating. He stated that the migration of the sulphur is carried on with equal facility from the upper sheet into the lower sheet of rubber and from the lower sheet into the upper. When a state of equilibrium is reached between the two sheets of rubber, during the course of the vulcanization of the same, the percentage of free sulphur in each sheet was exactly identical, whatever might have been their original content of this metalloid. From these experiments Skellon has concluded that the vulcanization process may be described in the following manner:

In the first stage the sulphur fuses. The second stage of the vulcanization is the solution of the sulphur in the rubber. The third stage consists in the formation of a loosely combined compound between sulphur and the rubber gum.

Skellon also made a study of the effects that are produced by polyprene sulphide. Polyprene sulphide is the chemical combination of sulphur and dimethyl cyclo octadiene. He arrived at the following conclusions as a result of these experiments.

Conclusions Reached

If the vulcanization of rubber is represented in the following manner:

$$(C_{10}H_{16})n + nS_2 = n(C_{10}H_{14}S_2)$$

then the ratio of the sulphur to the rubber finally becomes constant and the vulcanization must take place at a constant speed. However practical experience has shown that this is by no means the case. The speed of the vulcanization of rubber diminishes, in proportion as the duration of the operation advances. This must be due to the fact that the sulphur in the mixture becomes more soluble in the sulphide of polyprene than in the rubber. Hence in this case the principle of separation operates, and the sulphide extracts from the rubber mixture a certain proportion of sulphur. Of course this reaction takes place only after the sulphide of polyprene is first formed. At the beginning the extraction effect is very rapid, it then slows down toward the end of the operation.

The Loewen Theory

Vulcanization of rubber passes through two stages. In the first stage the process is of a physico-chemical character. The metalloid sulphur is absorbed by the rubber gum. In the second stage of the vulcanization the process is purely chemical. The two substances, rubber and sulphur, combine chemically.

In studying the phenomena accompanying the vulcanization of rubber Loewen had recourse to the microscope. A small fragment from a rubber mixture containing ten per cent of sulphur was placed on a microscope slide. It was covered with a glass plate and then the whole affair was subjected to a temperature of 140 degrees C. If this mixture is observed under the microscope at regular intervals, it is first seen, that, as soon as the sulphur is melted, the globules of that metalloid are dispersed in a sensibly regular manner throughout the entire mass of rubber. If the heating is continued, the mass becomes transparent and the globules of sulphur disappear, but on cooling, they become cloudy and the sulphur separates from the rubber and crystallizes out in rhombohedrons. If the plate is heated again, it becomes transparent, the sulphur being absorbed by the rubber. Then if the slide is covered with a piece of rubber which is itself covered with another glass plate and then if the entire mass is heated, so that the second piece of rubber is surrounded with molten sulphur, it can be seen under the microscope that the sulphur diffuses into the rubber and is finally entirely absorbed by it.

Thus Loewen found that the more the sulphur was dissoced during the course of the vulcanization process, the greater the degree of the same. This explains, when worked with a large excess of sulphur, the fact that ebonite does not separate out sulphur and is not subjected to the phenomenon of blooming.

In our next issue Dubosc will continue his studies of the various theories on vulcanization. Those of Bernstein on Depolymerization and of Lothar Weber will be next.

TECHNICAL ABSTRACTS

Mechanical **Chemical** **Physical**

Puncture Repair Mixture

French Patent No. 549,353 is a method of preparing a mixture which may be used in repairing punctures in rubber tires. The mixture consits of para rubber, gelatine, sandarac and other gums dissolved in benzine and carbon disulphide.

Manufacture of Rubber

Rubber latex is mixed with a sufficient proportion of powdery compounding ingredients, for example, thirty to eighty parts to one hundred parts of rubber latex, to effect coagulation on agitation. The coagulum is then dried and formed into a sheet. British Patent No. 208,469.

Effect of Sodium Silicofluoride on Rubber

The substitution of sodium silicofluoride for acetic acid as the coagulant of rubber latex causes a slight reduction in the rate of vulcanization. The subsequent soaking of the sheet rubber in a solution of sodium silicofluoride in order to prevent the formation of molds, causes a further reduction in the rate of vulcanization. (*Bulletin of the Rubber Growers' Association,* volume 5, pages 383, 384.

Coagulation of Latex by Organic Bases

Numerous aromatic or cylic bases, such as alpha phenyldiguanidine, pyridine, phenylhydrazine, aniline, methyl and dimethyl-anilines, meta toluidine and benzylamine constitute energetic coagulants of rubber latex. It was similarly found that piperidine is less effective, and ethylamine, methylamine, and urotropine (hexamethylenetretramine) are inactive in this respect. The author regards this coagulating power of the bases as due to the action that they exert on the proteins forming the emulsifying agents of the latex. Giornale Chimica Ind. Applicata, 1924, pages 10 to 11.

Vulcanization with Accelerators

The process which is patented in French Patent No. 553,971 relates to the use of various ammoniacal aldehyde compounds as accelerators of vulcanization. These compounds are combinations between ammonia and the aldehydes which possess an open chain of more than two and less than eight carbon atoms. Such a mixture for example will contain one hundred parts of rubber, three parts of sulphur, half a part of the accelerator, ten parts of zinc oxide. The vulcanization of such a rubber mixture will take an hour when carried out at a pressure of three kilograms.

The most satisfactory of the accelerators is derived from the aldehyde heptaldehyde. This is an oily substance, practically non-toxic in properties and stable. It is not liable to prevulcanize the rubber during the mixing operation.

The Rubber Hydrocarbon

Crude rubber is a mixture of a number of substances, a hydrocarbon to the extent of about 90 per cent, and the remaining 10 per cent consisting of resins, resin acids, proteins and their decomposition products, cyclic sugars, inorganic salts, and moisture. The rubber hydrocarbon consists of many C_5H_8 groups with a double bond in each group, and according to a theory advanced by Harries, these large molecules are joined together into larger groups or aggregates which have a diminished chemical activity. The relative sizes of these masses and the chemical activity may be varied by mechanical working and by chemical reagents. A great deal remains to be discovered concerning the chemistry of the rubber hydrocarbon to which rubber owes its characteristic properties.—Harry L. Fisher, the B. F. Goodrich Co., Akron, Ohio, writing in the June issue of *Industrial and Engineering Chemistry.*

Hydrogenated Rubber

A solution of artificial or natural rubber in a suitable solvent such as ether, petroleum spirit, or cyclohexane is treated with hydrogen in the presence of platinum black or palladium black, under pressure which may be slowly raised. The hydrogenated rubber can be used as an insulating material, either alone, or mixed with rubber, etheylcellulose, bitumen, or similar substances. German Patent No. 389,656.

India Rubber Composition

Rubber latex is mixed with a colloidal suspension of carbon in a fatty acid soap, saponin or other dispersing agent and coagulated. A mixture of rubber and carbon is obtained in this manner. For example, a suspension of lampblack in soap is heated to a temperature of 50 degrees C, then it is mixed with rubber latex and heated again to a temperature of 70 degrees C and the mixture is then finally coagulated by means of alum. British Patent No. 214,210.

Conversion of Rubber into Other Varieties of Gum

The rubber, whether it be of natural or artificial origin, is dissolved in a solvent or immersed in a liquid which causes it to swell up, and is then treated with halogen acids, such as hydrochlorie or hydrobromic acids, to convert the same into a hydrohalogen derivative. Then without isolating the latter compound from the solution, the reducing agent is added directly. The acid is added to the rubber solution until an excess of the same is present therein. German Patent No. 358,729.

Rubberized Fiber Composition

Fibers of any suitable kind, after being beaten, are immersed in a solution of rubber in toluene. Sulphur dioxide and hydrogen sulphide are passed in for some time and the rubber is percipitated on the fibers by the addition of alcohol or acetone, The fibers are then formed into a mat and the excess of liquid is removed. The mat is immersed in a rubber solvent to convert the rubber into a jelly and then immersed in alcohol, which displaces the solvent and causes the rubber to shrink on the fibers and coat each of them thoroughly. On drying a very flexible product is obtained. United States Patent No. 1,483,856.

Use of Diphenylguanidine as an Accelerator

An interesting article is published in the Journal of the Society of Chemical Industry, April 25, 1924, on the use of diphenylguanidine. Following are conclusions reached:

1. Diphenylguanidine possesses accelerating powers of the same order as para nitrosodimethylaniline.
2. Diphenylguanidine improves the strength and the toughness of mixings and imparts flat-curing properties.
3. The optimum quantities of diphenylguanidine and sulphur are one half to three-quarters of a per cent of the former, and five to seven per cent of the latter.
4. This accelerator gives similar results with mixings compounded with zinc oxide and light magnesium carbonate. It is more satisfactory, however, with large quantities of magnesia than with zinc oxide.
5. Brown and white substitutes appear to have a retarding effect, and such mixing do not give good results.
6. Diphenylguanidine mixings possess excellent aging properties when subjected to artificial aging tests, particularly if the sulphur content is low.
7. There appears to be little danger of premature vulcanization when this substance is present in the mixings.
8. Diphenylguanidine possesses the property of softening rubber.

RUBBER STATISTICS

Import **Production** **Export**

Summary of Exports of Rubber Goods from U. S. For June 1924 and Six Months Ending June 1924

Compiled from Statistics Furnished by the Department of Commerce

RUBBER BELTING, HOSE, PACKING, AND THREAD.

	Rubber Belting		Rubber Hose		Rubber Packing		Rubber Thread	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Totals for June	298,973	180,960	424,376	164,209	141,191	63,937	175,940	172,568
Totals for 6 mos. ending June	1,839,575	1,101,710	2,401,546	941,882	926,393	405,597	603,229	629,706

PNEUMATIC CASINGS AND PNEUMATIC TUBES

	Pneumatic Casings				Pneumatic Tubes			
	For automobiles		Other		Automobiles		Other	
	Number	Dollars	Number	Dollars	Number	Dollars	Pounds	Dollars
Totals for June	106,637	1,339,200	4,174	22,306	106,051	202,893	4,359	3,932
Totals for 6 mos. ending June	609,100	7,382,889	23,096	102,233	559,180	1,037,301	21,121	19,237

HARD RUBBER GOODS

	Battery jars and Accessories		Other Electrical Supplies		Other hard rubber goods	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Totals for June	89,055	17,736	8,664	4,726	38,525	48,408
Totals for 6 mos. ending June	237,417	64,769	70,558	45,186	217,622	264,931

WATERPROOFED AUTOCLOTH, RUBBERIZED FABRICS, ETC.

	Waterproofed Autocloth and Rubberizer Fabrics		Waterproofed Clothing	
	Sq. yards	Dollars	Pounds	Dollars
Totals for June	159,960	88,675	51,893	49,679
Totals for 6 mos. ending June	1,106,169	663,969	538,197	507,258

SOLID TIRES, ACCESSORIES AND REPAIR MATERIALS

	Solid Tires				Accessories and Repair Materials	
	For Automobiles and Motor Trucks		Other			
	Number	Dollars	Number	Dollars	Pounds	Dollars
Totals for June	7,694	192,212	134,962	31,142	132,657	50,004
Totals for 6 mos. ending June	56,106	1,502,101	736,552	178,831	605,146	232,322

RUBBER FOOTWEAR AND SOLES AND HEELS.

	Boots		Shoes		Canvas shoes with rubber soles		Rubber soles and heels	
	Pairs	Dollars	Pairs	Dollars	Pairs	Dollars	Pounds	Dollars
Totals for June	33,656	86,047	78,526	74,534	363,106	287,100	229,887	76,265
Totals for 6 mos. ending June	189,612	465,513	440,844	381,897	1,871,195	1,489,984	1,240,661	400,311

SUNDRIES, BATHING CAPS, RUBBER BALLS

	Water bottles and fountain syringes		other Druggists' Rubber Sundries		Bathing caps		Toy rubber balls and balloons	
	Number	Dollars	Pounds	Dollars	Dozen	Dollars	Pounds	Dollars
Totals for June	16,505	12,134	55,507	65,739	20,365	37,033	71,205	73,102
Totals for 6 mos. ending June	81,741	65,465	323,486	383,483	119,357	217,501	425,541	436,995

Imports of Crude Rubber into the U. S.

(Department of Commerce Statistics)

QUANTITY *(Long Tons)*

Month	1924	1923
January	21,911	35,609
February	31,513	26,955
March	20,730	30,929
April	37,886	31,062
May	27,753	35,762
June	22,381	35,352
Total for 6-month period	162,174	195,669

VALUE *(Dollars)*

January	$12,066,929	$14,310,825
February	17,644,164	13,150,843
March	11,638,062	19,041,565
April	20,500,087	21,925,814
May	14,304,261	24,953,222
June	11,254,247	23,941,937
Total for 6-month period	$87,407,750	$117,324,206

Rubber Exports from South America

The May, 1924 rubber shipments from Para and Manaos, Brazil, and Iquitos, Peru were as follows:

(In long tons)

Destination	From Para	From Manaos	From Iquitos	Grand Total
To United States	415	982	24	1,421
To Europe	493	458	40	991
Total	908	1,440	64	2,412

The total exports from these three districts for May, 1923 were 1,972 long tons, which when compared to the May, 1924 total of 2,412 long tons, gives an increase of 440 long tons for the 1924 period.

Imports of Crude Rubber, Gutta Percha, and Substitutes Therefor into the United States During the Month of June, 1924

Country	Crude Rubber						Other crude scrap and reclaimed
		Liquid Latex	Jelutong	Balata	Gutta Percha	Guayule	
	lb.	lb. dry wt.	lb.	lb.	lb.	lb.	lb.
France	44,465	—	—	—	—	—	—
Germany	22,588	—	—	—	—	—	81,797
Netherlands	22,400	—	—	—	—	—	—
Spain	—	—	—	—	—	—	1,460
England	7,080,647	—	—	3,455	830	—	24,724
Canada	2,850	—	—	—	—	—	117,030
Nicaragua	3,460	—	—	—	—	—	—
Panama	—	—	—	676	—	—	—
Mexico	—	—	—	—	—	296,400	—
Cuba	—	—	—	—	—	—	600
Brazil	2,248,195	—	—	5,656	—	—	—
Colombia	19,211	—	—	2,851	—	—	—
Ecuador	7,492	—	—	—	—	—	—
Dutch Guiana	—	—	—	513	—	—	—
Peru	1,683	—	—	82,782	—	—	—
British India	1,345,920	—	—	—	—	—	—
Ceylon	2,571,481	—	—	—	—	—	—
Straits Settlement	28,732,642	402,010	1,566,252	—	315,802	—	99,680
Java & Madura	4,870,741	—	279,730	—	119,515	—	84,070
Other Dutch E.Ind.	2,592,278	164,062	—	—	—	—	—
Total Quantity	49,566,051	566,072	1,845,982	45,933	436,147	296,400	409,361
Value	$11,133,574	120,673	180,916	15,115	53,109	52,052	30,869
Long Tons	22,128	253	—	—	—	—	—

British Rubber Statistics for May and June, 1924

Movements of all kinds of Rubber to and from the United Kingdom as per Board of Trade Returns

May

IMPORTS

From	May 1924	May 1923	May 1922	Five months ended May 1924	Five months ended May 1923	Five months ended May 1922
Straits Settlements & F.M.S.	2,785	2,996	3,908	15,652	18,201	16,958
Ceylon and British India	877	519	754	5,777	5,863	5,735
Dutch East Indies, etc.	747	512	990	3,302	2,740	3,350
Brazil and Peru	211	205	447	1,539	1,451	1,608
Other Countries	173	128	20	929	700	205
Total Tons	4,793	4,360	6,119	27,199	28,955	27,856

EXPORTS

To	May 1924	May 1923	May 1922	Five months ended May 1924	Five months ended May 1923	Five months ended May 1922
United States of America	1,742	6,534	686	12,884	21,280	13,086
Canada	291	120	60	1,561	1,139	261
France	1,810	1,424	1,023	8,159	7,015	5,932
Belgium	132	172	95	861	800	598
Italy	408	293	264	2,150	1,724	1,098
Spain	57	14	71	198	96	227
Germany, Austria, Hungary	1,175	231	834	3,348	2,549	4,035
Russia	—	393	14	399	393	14
Sweden, Norway & Denmark	123	84	47	730	366	239
Other Countries of Europe	112	50	151	372	381	506
Other Countries	21	53	24	163	166	86
Total Tons	5,871	9,368	3,269	30,825	35,909	26,082

Landings, Deliveries and Stocks in London and Liverpool as returned by the Warehouses and Wharves during the month of May

	Landed for May	Delivered for May	Stocks 31st May 1924	Stocks 31st May 1923	Stocks 31st May 1922
London					
Plantation	4,512	7,435	51,329	54,035	70,018
Other Grades	11	—	118	101	128
Liverpool					
Plantation	106*	917*	4,270*	5,953*	7,593*
Para and Peruvian	320	394	716	297	980
Other Grades	—	—	210	299	429
Total Tons London and Liverpool	4,949	8,746	56,643	60,615	79,148

*Official Returns from the six recognized Public Warehouses.

RECEIPTS AT PARA

	May 1924	May 1923	May 1922	Jan.-May (5 mos.) 1924	Jan.-May (5 mos.) 1923	Jan.-May (5 mos.) 1922
Rubber	1,110	730	1,000	6,850	6,650	7,642
Caucho	1,055	480	500	3,741	2,364	2,035
Total Tons	2,165	1,210	1,500	10,591	9,014	9,677

June

IMPORTS

From	June 1924	June 1923	June 1922	Six months ended June 1924	Six months ended June 1923	Six months ended June 1922
Straits Settlements & F.M.S.	2,663	2,676	3,244	18,315	20,877	20,202
Ceylon and British India	678	886	839	6,455	6,749	6,574
Dutch East Indies, etc.	567	574	689	3,869	3,314	4,039
Brazil and Peru	110	265	103	1,649	1,716	1,711
Other Countries	120	119	5	1,049	819	210
Total Tons	4,138	4,520	4,880	31,337	33,475	32,736

EXPORTS

To	June 1924	June 1923	June 1922	Six months ended June 1924	Six months ended June 1923	Six months ended June 1922
United States of America	1,363	3,956	739	14,247	25,236	13,825
Canada	264	146	20	1,825	1,285	281
France	1,590	1,196	625	9,749	8,211	6,557
Belgium	106	69	108	967	869	706
Italy	392	325	115	2,542	2,049	1,213
Spain	20	8	21	218	104	248
Germany, Austria, Hungary	474	602	673	3,822	3,151	4,708
Russia	—	39	16	399	432	30
Sweden, Norway & Denmark	22	27	86	752	393	325
Other Countries in Europe	195	29	178	567	410	684
Other Countries	66	18	77	229	184	163
Total Tons	4,492	6,415	2,658	35,317	42,324	28,740

Landings, Deliveries and Stocks in London and Liverpool as returned by the Warehouses and Wharves during the month of June.

	Landed for June	Delivered for June	Stocks 30st June 1924	Stocks 30st June 1923	Stocks 30st June 1922
London					
Plantation	3,440	3,918	50,851	50,663†	71,473
Other Grades	—	3	115	105	124
Liverpool					
Plantation	192*	330*	4,132*	5,559*	7,713*
Para and Peruvian	296	335	677	275	920
Other Grades	—	—	210	224	428
Total Tons London and Liverpool	3,928	4,586	55,985	56,826	80,658

*Official Returns from the six recognized Public Warehouses.
†Adjusted owing to stock-taking at various Wharves.

RECEIPTS AT PARA

	June 1924	June 1923	June 1922	Jan.-June (6 mos.) 1924	Jan.-June (6 mos.) 1923	Jan.-June (6 mos.) 1922
Rubber	890	780	720	7,740	7,430	8,362
Caucho	806	442	740	4,547	2,806	2,775
Total Tons	1,696	1,222	1,460	12,287	10,236	11,137

Imports of Rubber Goods into United States During First Six Months of 1924

Rubber Tires and Tubes for Automobiles, Motor Cycles, and Bicycles

From—	January Number	January Dollars	February Number	February Dollars	March Number	March Dollars
France	18,001	85,765	12,831	80,747	45,018	213,616
England	76	1,702	7	43	74	217
Canada	64	798	22	323	46	507
Total	18,141	88,265	12,860	81,113	45,138	214,340

From—	April Number	April Dollars	May Number	May Dollars	June Number	June Dollars
France	26,002	163,710	27,068	187,143	35,720	226,861
England	24	60	8	47	3	104
Scotland	....	....	6	201	....	....
Canada	74	1,293	170	2,269	3	35
Total	26,100	165,063	27,252	189,660	35,726	227,000

Belting for Machinery, of Cotton or other Vegetable Fiber, and Rubber

	January Pounds	January Dollars	February Pounds	February Dollars	March Pounds	March Dollars
Belgium	979	766	855	671	692	547
France	....	....	25	19	....	....
England	21,471	12,721	33,553	24,299	42,203	27,847
Scotland	20,949	16,317	21,992	16,396	3,660	3,170
Total	43,399	29,804	56,425	41,385	46,555	31,564

	April Pounds	April Dollars	May Pounds	May Dollars	June Pounds	June Dollars
Belgium	1,043	827	200	176	670	533
England	44,105	31,251	12,580	8,821	53,820	30,889
Scotland	16,576	16,999	9,009	8,033	4,404	3,775
Canada	98	100	44	42	....	....
Total	61,822	49,177	21,833	17,072	58,894	35,197

Druggists' Rubber Sundries

	January Pounds	January Dollars	February Pounds	February Dollars	March Pounds	March Dollars
Germany	4,703	1,508	1,587	648	84	25
England	6,331	11,197	3,600	2,714	6,617	14,686
Scotland	....	....	....	....	43	33
Canada	5,003	1,799	4,761	3,396	2,415	1,545
Japan	40	22	....	....	....	....
Total	16,077	14,526	9,948	6,758	9,159	16,289

	April Pounds	April Dollars	May Pounds	May Dollars	June Pounds	June Dollars
Germany	2,890	2,278	4,461	1,300	....	....
England	7,053	11,516	5,685	7,797	3,710	10,977
Canada	3,930	2,918	....	....	....	....
Total	13,873	16,712	10,146	9,097	3,710	10,977

Hard Rubber Goods

	January Pounds	January Dollars	February Pounds	February Dollars	March Pounds	March Dollars
Austria	4,420	4,962	20,790	21,903	24,600	27,796
Czechoslovakia	....	....	124	103	....	....
Germany	11,461	13,065	15,227	18,928	8,411	10,001
Poland & Danzig	2,560	3,611	....	....	....	....
England	60	192	404	243	1,058	944
Canada	....	....	12	44	....	....
Total	18,501	21,830	36,557	41,221	34,069	38,741

	April Pounds	April Dollars	May Pounds	May Dollars	June Pounds	June Dollars
Austria	4,515	4,639	18,044	23,276	14,773	16,205
Belgium	25	33	....	....	39	18
France	7	4	77	32	55	56
Germany	11,820	17,215	8,218	12,059	9,153	15,045
England	159	363	1,188	1,227	420	388
China	....	....	....	....	3	20
Total	16,526	22,254	27,527	36,594	24,443	31,732

MARKETS

Cottons and Fabrics

NEW YORK, August 1, 1924.

The trend of the market has varied considerably over the last two weeks reaching a new high level on the 21st and at this writing showing an approximate net loss of two cents as compared with closing quotations in our last issue.

During the week ending on the 25th cotton prices showed much activity with a wide range in quotations. A great part of the interest was centered on the July position with contracts selling as low as 33.75c and as high as 35.05c. The Southern spot markets during the week reported an increased volume of spot transactions with business, however, in new-crop cotton more or less limited. Exports for the week according to statistics were 33,160 bales as against 49,752 bales during the previous week.

On the 21st when the Department of Agriculture announced a condition of 68.5 and an indicated crop of 11,934,000 bales as against a supposed condition of 71.6 the market soared to new high levels, the October position rising the full 200 points allowed by the Exchange for one day's fluctuation and finally stopping at 27.65. However, during the day's trading considerable realizing on cotton bought during the previous week was done and prices eased off at the close. A net advance of 88 to 148 points was recorded.

Statistics as compiled by the Department of Commerce show that during the fiscal year exports of raw cotton amounted to 5,731,900 bales an increase of 13 per cent over 1923 while an advance is noted in the average export price during 1924 which was 30.6c as compared with 25.1 in 1923.

Raw cotton consumption during the present year is estimated to be approximately 1,000,000 bales less than last year. Raw material consumed during the eleven months ending June 30th aggregated 5,341,000 bales and allowing a total consumption during July to be 325,000 bales, the total consumption for the year ending July 30th would be approximately 5,666,000 bales as against 6,666,000 in 1923 making a difference between the two years of almost 1,000,000 bales.

The condition of the cotton crop at the present time would seem to be favorable judging from reports received from the various sections. People in Texas say that very little damage has been done to the crop in that state due to the recent drought in the West but instead has restricted to no little extent the activity of the boll weevil, inasmuch as this pest is much less in evidence than in previous seasons. In the East with the return of warm dry weather good progress has been made in clearing the fields of grass and weeds and the crop as a whole is in a very promising condition. Closing prices follow:

	Open	High	Low	Close July 31	Close July 15
October	28.00	28.82	27.57	28.81	25.04
December	27.15	28.09	26.89	28.09	24.24
January	27.20	27.85	26.76	27.80	24.11
March	27.50	28.20	27.12	28.20	——
May	27.50	28.20	27.18	28.10	——

TIRE FABRICS

The market during the past two weeks has shown considerable improvement both in demand and in business placed for the account of tire manufacturers and prices today note an advance of from two to three cents over previous quotations.

The opinion as expressed by the larger factors in the trade would indicate that the market is slowly assuming a more healthy condition. Mills which are not running on cost plus contracts are reported in many instances to be placing a fair amount of business and while in many cases profits taken are small, a steady demand usually means better business later on. A great deal of the call on the part of the manufacturers is on the cost plus contracts but where special constructions are required sellers are assured of a better than an average price.

From many quarters in the Akron district come optimistic reports relative to the tire situation. Tire dealers from nearly all sections of the country report a large increase in sales while an increase in production is reported to be taking place in a number of the tire factories. Akron reports that fabric consumption at the present time is at its peak.

The majority of orders placed by tire factories for fabric are still for nearby deliveries for although many of the largest factors in the tire trade are continually in the market the general disposition is to buy carefully ahead. On the 14th several orders for large sized quantities were reported placed with 56c paid in two directions for Carded Peeler Cord 23/5/3. A number of mills are quoting 52c on this grade but for odds and ends. With cotton in a stronger position and old stocks well used up, from 55c to 57c is the present asking price based on today's cotton market. The majority of houses report little interest of late on the Square Woven fabric with prices for this grade running from one to two cents below the cord construction. Original May cord tire equipment decreased 34.4 per cent as compared with May, 1923, while Square Woven tires decreased 34.9 per cent as compared with the same period last year.

CORD FABRICS			
Combed Sakellarides		Nominal	
Combed Peeler	lb.	Nominal	
Carded Peeler	lb.	.55 @	.57
Combed Egyptian uppers	lb.	.68 @	.70
Carded Egyptian uppers	lb.	.63 @	.65
SQUARE WOVEN			
17¼-ounce Egyptian uppers, combed	lb.	Nominal	
17¼-ounce Egyptian uppers, carded	lb.	.62 @	.65
17¼-ounce Sakellarides, combed	lb.	Nominal	
17¼-ounce Peeler, carded	lb.	.53 @	.56

Ducks—No noticeable increase in activity has taken place in this market since our last issue with prices quoted today showing a slight advance of from 2c to 3c over previous quotations for most grades. Buyers still continue to confine their purchases to limited quantities with few orders running over 25,000 pounds with the prices paid in most cases in favor of the buyer inasmuch as when raw cotton showed a considerable advance prices in this market remained unchanged and in many instances were cut where important orders were placed.

Burlaps—Continued activity has featured this market during the past ten days with a bulletin on the 24th showing a thirty point rise during the week in July burlap prices. On the 16th considerable activity took place in the market due to reports from Calcutta that shipment prices were higher due to advances caused by a sudden rise in the jute market. 8s advanced from 5 to 15 points during the day's trading with sales noted at 5.95c and at 8.75c for 10½s.

SHEETINGS			
40-inch 2.50-yard	yd.	.17 @	—
40-inch 2.85-yard	yd.	.15¼ @	.15½
40-inch 3.15-yard	yd.	.15 @	.15¼
40-inch 3.60-yard	yd.	.12¾ @	—
40-inch 3.75-yard	yd.	.11½ @	.11¾
40-inch 4.25-yard	yd.	.10¼ @	.10¾
DUCKS			
Belting	lb.	.45½ @	—
Hose	lb.	.45½ @	—
Enameling	lb.	.48 @	.52
Shoe Ducks	lb.	.52 @	.54
Single filling		.22 @	.24½
Double filling	lb.	.24 @	.25½
BURLAPS (Carload Lots)			
7½-ounce 40-inch		6.15 @	6.20
8 -ounce 40-inch		6.25 @	6.30
10 -ounce 40-inch		9.25 @	—
10½-ounce 40-inch		9.50 @	—
DRILLS			
37-inch 2.75-iyard	yd.	.15 @	—
37-inch 3.00-yard	yd.	.14½ @	—
37-inch 3.25-yard	yd.	.13½ @	—
37-inch 3.50-yard	yd.	.12½ @	.12¾
37-inch 3.95-yard	yd.	.11 @	.11¼
OSNABURGS			
30-inch 7-ounce		.15½ @	.16
40-inch 7-ounce		.17 @	.17¼

Chemicals and Compounding Ingredients

THE INDUSTRIAL CHEMICAL MARKET—NEW YORK, Aug. 1, 1924—A more active buying interest on the part of consumers has featured the market during the past two weeks but prices for most items remain nominally unchanged. Activity in the market at this time of year is consider ed by the trade as a good omen and a considerable increase in business is looked for in the fall. Many of the dealers re port that while some of the larger factors in the tire industry are in the market now and then, the majority of orders booked at the present time are for the account of the smaller manufacturers, a large percentage of whom are running at full capacity. Commitments for August have in a number of cases exceeded in quantity anticipations of sellers and in view of these facts the trade as a whole is very optimistic as to business in the near future.

ACCELERATORS

Organic

Aldehyde ammonia, crystals	lb.	$ .90	@ .95
Aniline oil, drums	lb.	.17	@ .17½
Diphenylguanidine	lb.	1.10	@ 1.15
Excellerex,	lb.	.35	@ .40
Formaldehyde-Aniline	lb.	.40	@ .42½
Hexamethylene-tetramine	lb.	.82	@ .85
Paraphenylenediamine	lb.	1.40	@ 1.50
Super-Sulphur No. 1	lb.	.50	@ .60
Super-Sulphur No. 2	lb.	.25	@ .35
Tetramethyl—Thiuramdisulphide	lb.	6.00	@ —
Thiocarbanilide, kegs	lb.	.26	@ .29
Vulcocene	lb.	.35	@ —

Inorganic

Lead, sublimed blue	lb.	.11	@ —
Lead, white	lb.	.09½	@ —
Litharge, domestic	lb.	.10	@ —
Lime, Superfine	lb.	.02	@ .04
Magnesia, calcined, light	lb.	.15	@ .18
extra light	lb.	.20	@ .24
heavy	lb.	.04	@ .05

COLORS

Blacks

Arrow "Aerfloted"	lb.	.07½	@ .11
Bone Black	lb.	.05½	@ .07½
Carbon "	lb.	.09	@ .12
Drop "	lb.	.07½	@ .10
Ivory "	lb.	.15	@ .45
Lamp "	lb.	.12	@ .40
Micronex	lb.	.09	@ .14

Blues

Cobalt	lb.	.52	@ .56
Prussian	lb.	.36	@ .39
Ultramarine	lb.	.06	@ .35

Browns

Iron oxide	lb.	.02¼	@ .06¼
Sienna, Italian,	lb.	.04½	@ .14
Umber, Turkey,	lb.	.04	@ .04½
Vandyke, domestic	lb.	.03½	@ .04

Greens

Chrome, light	lb.	.30	@ .31
medium	lb.	.32	@ .35
dark	lb.	.35	@ .38
Commercial	lb.	.10	@ .10½

Reds

Antimony crimson, 15/17 F.S.	lb.	.37	@ .44
sulphur free	lb.	.45	@ .60
golden, 15/17 F.S.	lb.	.20	@ .22
calcium and sulphur free	lb.	.40	@ —
red sulph. 15-17 F.S.	lb.	.16	@ .20
Indian, English	lb.	.11	@ —
Para toner	lb.	.95	@ 1.00
commercial	lb.	.15	@ .18
Red Oxide, reduced	lb.	.08	@ .12
pure	lb.	.12	@ .14
Toluidine toner	lb.	1.85	@ 2.05
Venetian red	lb.	.02	@ .05½
Vermillion, quicksilver, English	lb.	1.25	@ 1.30
domestic	lb.	.15	@ .25

Whites

Albalith	lb.	.07	@ .07¼
Aluminum bronze		.55	@ 1.25
Lithopone Azolith	lb.	.06	@ —
Zinc Oxide—American Process XX red	lb.	.07¾	@ .08¼
Kadox, black label, bags, cars		.11⅝	@ .11⅞
blue " " "		.10⅝	@ .10⅞
red " " "		.09⅝	@ .09⅞
American Azo: ZZZ (lead free)	lb.	.07¾	@ .08¼
ZZ (under 5 per cent leaded)	lb.	.07	@ .07½
Z (8-10 per cent leaded)	lb.	.06¾	@ .07¼
Zinc Oxide—French Process White seal	lb.	.12	@ —
Green seal	lb.	.10¾	@ —
Red seal	lb.	.09¾	@ —

Yellows

Chrome, light		.17	@ .18
dark and medium	lb.	.17	@ .18
Cadmium Sulphide	lb.	1.50	@ 1.60
Ocher, French	lb.	.01¾	@ .03½
domestic	lb.	.01½	@ .02½

COMPOUNDING INGREDIENTS

Aluminum Flake	ton	25.00	@40.00
hydrate light	lb.	.17	@ .18
Ammonia carbonate,	lb.	.13	@ .14½
Asbestine	ton	15.00	@18.00
Barium carbonate	ton	65.00	@68.00
Barium Dust	lb.	.05	@ .06
Barytes southern off-color,	ton	15.00	@18.00
Western prime white	ton	22.00	@23.00
Imported	ton	28.00	@33.00
Basofor	lb.	.04¼	@ —
Blanc fixe, dry f.o.b. works	lb.	.03¾	@ —
Carrara filler	lb.	.01½	@ .02
Chalk, precipitated, extra light	lb.	.04¼	@ .05
heavy	lb.	.03¼	@ .04
Clay, China, domestic,	ton	12.00	@15.00
Dixie	ton	22.00	@32.00
Blue Ridge	ton	12.00	@25.00
Fossil flour	lb.	.03	@ .05
Glues, extra white	lb.	.22	@ .30
medium white	lb.	.20	@ .26
cabinet	lb.	.18	@ .28
cabinet low grade	lb.	.15	@ .18
common bone	lb.	.11	@ .14
Graphite flake, bbls.	lb.	.06½	@ .12
Lump	lb.	.04	@ .10
Infusorial earth, powdered	ton	60.00	@ —
bolted	ton	65.00	@ —
Liquid latex	gal.	1.25	@ 1.35
Magnesia, carbonate	lb.	.08¼	@ .08¾
Mica, powdered	lb.	.07	@ .15
Rotten Stone (powdered)	lb.	.02½	@ .04½
Soapstone, powdered	ton	15.00	@22.00
Starch, powdered	cwt.	3.17	@ 3.27
Talc, domestic	ton	15.00	@22.00
French	ton	20.00	@25.00
French, high grade	ton	40.00	@45.00
Italian	ton	50.00	@55.00
Terra Alba	cwt.	1.75	@ 1.90
Tripoli, white	lb.	.02	@ .02¼
Whiting, commercial	cwt.	.85	@ 1.15
gilder's bolted	cwt.	1.10	@ 1.20
English cliffstone	cwt.	1.50	@ —
Paris whiteAmerican	cwt.	1.25	@ 1.50
Quaker	ton	13.00	@15.00
Sussex	ton	8.00	@16.00
Wood pulp XXX	ton	35.00	@ —
" " X	ton	25.00	@ —

MINERAL RUBBER

Genasco (factory)	ton	50.00	@52.00
Granulated M.R.	ton	50.00	@54.00
Hard hydrocarbon	ton	30.00	@40.00
Soft hydrocarbon	ton	30.00	@40.00
320/340 M. P. hydrocarbon (c. l. factory)	ton	45.00	@50.00
300/310 M. P. hydrocarbon (c.l. factory)	ton	40.00	@45.00
Synpro, granulated, M. R. (factory)	ton	55.00	@70.00

SOFTENERS

Acids

Acetic, 28%	cwt.	3.12	@ 3.37
Cresylic, 97%	gal.	.63	@ .68
95%		.61	@ .66
Muriatic, 20%	cwt.	.90	@ 1.00
Nitric, 36 degrees	cwt.	4.25	@ 4.50
Sulphuric, 60 degrees	ton	9.00	@10.00
66 degrees	ton	14.00	@15.00
Tartaric, crystals	lb.	.30	@ —

Alkalies

Caustic soda, 76%	cwt.	3.76	@ 3.91
Soda ash, 58%	cwt.	2.04	@ 2.19

Oils

Castor, No. 3, bbls.	lb.	.16¼	@ —
Chinawood, bbls.	lb.	.15	@ .15¼
Corn, crude, bbls.	lb.	.12	@ .12¼
refined	lb.	.13½	@ .14
Cottonseed, crude		.11	@ —
Glycerine	lb.	.17½	@ .18
Linseed, Raw C.L.	gal.	1.00	@ 1.01
Palm, Niger	lb.	.07¾	@ .07⅞
Lagos	lb.	.08	@ .08⅛
Peanut, domestic, crude	lb.	.12½	@ —
Petrolatum, white		.12	@ —
amber		.05½	@ .06
dark amber	lb.	.05	@ .05½
Pine, steam distilled	lb.	.60	@ .65
Rapeseed, refined	gal.	.80	@ .82
blown	gal.	.96	@ .98
Rosin, first rectified	gal.	.40	@ .42
second rectified	gal.	.45	@ .47
Soya Bean, crude		.12½	@ —
Tar, commercial	gal.	.30	@ .32

Resins and Pitches

Cumar resin, hard	lb.	.09	@ .10
soft	lb.	.09	@ .10
Parra M.R.	lb.	.06	@ .07
Tar Retort	bbl.	10.50	@11.00
kiln burned	bbl.	10.50	@11.00
Pitch, Burgundy	lb.	.65	@ .66
coal tar	gal.	.06	@ .08
pine	bbl.	5.50	@ 5.75
Rosin grade K	bbl.	5.85	@ —
Shellac, Superfine orange	lb.	.56	@ .57

Solvents

Acetone, drums C.L.	lb.	.17	@ —
Alcohol, denatured, No. 1 bbls.	gal.	.49	@ .53
Benzol, 90%	gal.	.25	@ .30
pure		.24	@ .25
Carbon bisulphide	lb.	.06	@ .07
tetrachloride	lb.	.06⅞	@ .07¼
Dimethylaniline	lb.	.35	@ .37
Motor gasoline, steel bbls.	gal.	.19	@ —
Naptha, V. M. & P.	gal.	.17½	@ .18
Toluene	gal.	.31	@ —
Turpentine; spirits	gal.	.83	@ .84
wood	gal.	.74	@ .75

Waxes

Bayberry	lb.	.21	@ .22
Beeswax	lb.	.43	@ .45
Carnauba, No. 1	lb.	.33	@ .34
Ceresin, white	lb.	.10	@ .11
Montan, crude	lb	.06	@ .06½
Ozokerite, black	lb.	.26	@ .27
green	lb.	.28	@ .29
Paraffine	lb.	.05	@ —
Sweet wax	lb.	.12	@ —

SUBSTITUTES

Black	lb.	.08	@ .14
White	lb.	.09	@ .15
Brown	lb.	.10	@ .15
Brown factice	lb.	.10	@ .15
White factice	lb.	.09½	@ .16

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.25	@ .26
Sulphur Chloride (drums)	lb.	.04	@ .05
Sulphur flour Commercial bags,	cwt.	1.35	@ 1.70
" bbls.	cwt.	1.70	@ —
Superfine, bags,	cwt.	2.00	@ 2.40
" bbls.	cwt.	2.30	@ 2.75
100% pure, refined, bags	cwt.	2.35	@ 2.65
bbls.	cwt.	2.60	@ 2.90

Crude Rubber

NEW YORK, August 1, 1924

The market over the last two weeks has continued on its upward trend with prices quoted to-day showing an advance of approximately two cents above quotations in our last issue. With many of the leading rubber companies reporting increased net profits for the six months' period and with tire sales in nearly all sections of the country showing a gain in volume it would seem that the industry as a whole had successfully passed the low mark of the year, and from all indications there is little doubt but that prices will continue to show improvement.

Although automobile production in June was only 217,927 cars as compared with 279,447 in May and 337,442 in June, 1923 this twenty per cent decline over last year can be attributed to the fact that during the past month manufacturers have been cleaning house preparatory to the new fiscal year and in addition inventory-taking and the introduction of new models have all had their part in slowing up production. An increase in production during July is anticipated by the industry.

The rubber trade in London has also experienced the satisfaction of higher prices with to-day's quotations over the shilling mark, and the opinion expressed abroad is that the entire industry will see a great development when Europe becomes more stabilized both industrially and financially. On the 14th the local market eased off at the close to 21 cents due to a too great selling pressure with little buying support. London, both in sympathy with this market and due to heavy speculation abroad, also showed a decline to 11 5/8d buyers at the close.

On the 15th, however, with London reporting a 3/8d rise, buyers in this market began to make their appearance and with a large volume of business placed for the account of consumers the market advanced one cent to 22 cents, this price done on the spot position, and 23 3/8 cents paid for October/December equal. The remainder of the week continued along with only fair activity noted and prices fluctuating slightly. Manufacturers, waiting for a more stabilized market and for lower prices were reluctant to enter the market and few sales of any great quantity were reported passed.

Another advance was noted on the 22nd with 22 1/4 cents paid for spot and Oct./Dec. reported sold to a factory at 22 5/8 cents. London also closed strong at 12d with more buyers than sellers. An announcement was made on the 24th that a report to be issued shortly by the government looks for a world shortage in rubber during the next five years due chiefly to the fact that little new acreage has been planted since restrictions were put into effect. The report will also dwell on the overproduction of tires and the relative result on the future of the industry. On the 25th and 26th prices again advanced with sellers asking 22 7/8 cents for spot. A heavy buying demand was noted in the market. On the 28th prices continued to move up with Oct./Dec. done at 24 cents in the trade and 23 1/2 cents paid by manufacturers for the nearby positions. Quotations of this date follow:

NEW YORK MARKET

Plantations—			
Ribbed Smoked Sheets.			
Spot	.23 1/2	@	—
August	.23 3/8	@	—
August/September	.23 3/8	@	—
Oct.-Dec.	.23 7/8	@	—
First Latex, crepe, spot	.24 1/2	@	—
Amber Crepe No. 1, spot	.23	@	—
" " No. 2,	.22 3/4	@	—
" " No. 3,	.22 1/2	@	—
" " No. 4,	.19 1/4	@	—
Brown Crepe, Rolled	.21 3/4	@	—
" " Clean, thin	.23	@	—
" " Specky	.22 1/2	@	—
Scrap, Colombo No. 1	.15 1/2	@	—
Pontianac—			
Prime Pressed	.13 1/4	@	—
Palembang	.08	@	—
Bangermassin	.07 1/2	@	—
Sarawak	.07	@	—
Paras—			
Up-river Fine	.23	@	—
" Medium	.21	@	—
" Coarse	.15	@	—
Islands, fine	.21 1/2	@	—
" medium	.21	@	—
" coarse	.13 1/2	@	—
Cameta	.13 1/2	@	—
Madeira Fine	.23 1/2	@	—
Acre Bolivian, fine	.23	@	—
Cut Beni Bolivian, fine	.24	1/2	—
Tapajos, fine	.21 1/2	@	—
Xingu Ball	.14 1/4	@	—
Caucho Ball—			
Upper, shipment	.14 3/4	@	—
Centrals—			
Central, scrap, prime	.13 1/4	@	—
Corinto, scrap	.13 1/4	@	—
Esmeralda, sausage	.13 1/4	@	—
Guayule, w and d	.23	@	—
Africans—			
Benezuela, No. 1	.12	@	—
" No. 2	.11	@	—
Congo, upper, black	.18	@	—
" " red	.17 1/2	@	—
Kassai, Prime Red	.16 3/4	@	—
Balata—			
Black, Columbia	.49	@	.51
" Cuidad	.62	@	.63
Surinam, sheet	.73	@	.75
Gutta Percha—			
Siak	.18 1/4	@	—
Red Macassar	2.80	@	3.00
Chicle—			
Mexican, Yucatan	.64	@	.65

LONDON MARKET

Standard Ribbed Smoked Sheets—	
Spot	12 1/2d
September	12 5/8
Oct.-Dec.	12 7/8
Jan.-Mar.	13 1/4

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—	
Spot	12 1/8
July-Sept.	12 3/8
Oct.-Dec.	12 5/8

A Dependable Concern for

CRUDE RUBBER

THE KAHNHEIMER CO., AKRON, O.

Reclaimed Rubber

NEW YORK, August 1, 1924

Only fair activity has been noted in this market with prices to-day nominally unchanged from previous quotations. The recent advance in crude rubber has had to date no visible affect upon this market and the trade as a whole does not look for any great increase in activity until the summer months have passed. Reclaimers as a rule do not feel the effects of heavy retail selling for several months afterward because in times of heavy shipments stocks are drawn on rather than current manufacturing.

Floating Tube	.13	@	.13 1/2
Friction, uncured	.18 1/2	@	.19
Boots and Shoes (unwashed)	.09	@	.09 1/4
Boots and Shoes (washed)	.12 1/2	@	.13
Mechanical	.09	@	.09 1/2
Hose	.09 1/2	@	.10
Tires, truck	.07 3/8	@	.08
Tires, auto, black	.09	@	.09 1/2
Black (washed)	.10	@	.10 1/2
White	.13 1/4	@	.13 3/4
Dark Gray	.09 1/4	@	—
Light Gray	.10 3/4	@	—

Scrap Rubber

NEW YORK, August 1, 1924

Considerable activity has been noted in this market during the past few days with prices showing an upward tendency with some increases reported. With crude rubber on the upward trend reclaimers in many cases are undoubtedly finding it profitable to purchase scrap to meet some of their requirements and dealers in this market look for additional business during the coming months.

Auto tire peelings	.01	@	.01 1/4
Standard White auto ton	16.00	@	18.00
Mixed auto ton	12.00	@	13.00
Bicycle tires ton	8.00	@	9.00
Clean solid truck tires	.01	@	.01 1/2
Boots and shoes	.02	@	.02 1/4
Arctics, untrimmed	.00 7/8	@	.01
Arctics, trimmed	.01 1/4	@	.01 3/8
Inner tubes, No. 1	.04	@	.04 1/4
Inner tubes, compounded	.02 1/4	@	.02 1/2
Inner tubes, red	.01 3/4	@	.01 7/8
Battery jars, clean hard rubber	.02	@	.02 1/4
Air Brake Hose ton	10.00	@	11.00
Rubber Hose ton	7.00	@	8.00

Chemicals

Castor Oil—The tone of the market for the past few days has been strong due to recent advices from India that offerings in that market are extremely limited with high prices asked in most directions. No. 3 is quoted today for carlots in drums at 16c and for barrels at 16 1/4c.

China Clay—With consumers covering their present requirements with only moderate sized orders little change is noted in the market. Sellers at present quotations are asking $12.00 to $15.00 per ton, F.O.B. their plant for domestic lump while from $15.00 to $23.00 per ton is quoted for the imported in bulk.

Carbon Tetrachloride—Due to the recent over production in this market existing conditions are still unsettled. With competition rife among the various manufacturers certain price concessions have been made. The price quoted in today's market is 6 3/4c to 7 1/4c per pound.

Rubber Patents

JUNE 24, 1924

1,498,532. Method and apparatus for covering and rolling tire bead cores. Robert R. Ambler, Akron, Ohio, assignor to the B. F. Goodrich Co., New York, N. Y.

1,498,603. Resilient wheel. Palmerston North, New Zealand.

1,498,632. Resilient wheel. Robert L. Leonard and Thomas M. Watson, Chester, Pa.

1,498,683. Tire repair means. Albert B. Davis, Smithfield, Va.

1,498,711. Resilient tire. Paul R. Yeazel, Springfield, Ohio.

1,498,854. Demountable rim. Arthur G. Painter, Seattle, Wash., assignor of one-half to Henry C. Peters, Seattle, Wash.

1,498,864. Method of manufacturing inner tubes. John E. Cady, Indianapolis, Ind., assignor to G. & J. Tire Co., Indianapolis, Ind.

1,498,931. Resilient tire. Chauncey M. Pinckney, Denver, Col.

1,498,935. Tire-treating apparatus. Samuel M. Shull, Lewiston, Mont.

1,498,970. Tire for automobiles. Frederick C. Kaufmann, New York, N. Y.

1,498,975. Air tube for pneumatic tires. Thomas Baker McLeroth, London, Eng.

1,499,049. Tire rim. Charles B. Bell, Los Angeles, Cal.

1,499,238. Rubber heel. John Malcher, Chicago, Ill.

1,499,246. Protective device for pneumatic tire valves. George Wells Oakes, Crystal City, Mo.

1,499,247. Combined dust and air cap for valve stems. George Wells Oakes, Crystal City, Mo.

1,499,248. Valve for pneumatic tires and for like purposes. Roy G. Old and Frederick William Hill. Folkstone, Eng.

1,499,265. Reducing garment. Louis M. Ullman and David A. Lederer, New Haven, Conn.

1,499,276. Resilient tire. Orr H. Williams, Columbus, Ohio, assignor to the Lancaster Tire & Rubber Co., Columbus, Ohio.

1,499,297. Collapsible core for pneumatic tires. Peter De Mattia, Clifton, N. J., assignor to De Mattia Bros., Garfield, N. J.

JULY 15, 1924

1,501,066. Clasp for rubber aprons. Eugene W. Rutherford, New Haven, Conn., assignor to Shoe Hardware Co., Waterbury, Conn.

1,501,069. Punctureproof tire. John H. Smith, Detroit, Mich.

1,501,176. Resilient wheel and tire structure. De Witt Nelson and Charles H. Burrows, Minneapolis, Minn.

1,501,272. Tire rim. Henry J. Corby and Robert H. Thompson, Dayton, Ohio; said Corby assignor to said Thompson.

1,501,360. Tire rim. Fred T. Murray, Cameron, S. C.

1,501,361. Dust cap for tire valves. Eugene V. Myers, East Orange, N. J., assignor to A. Schrader's Son, Inc.

1,501,362. Dust cap. Eugene V. Myers, East Orange, N. J., assignor to A. Schrader's Son, Inc.

1,501,399. Emergency tire. Jerome W. Hannan, Wayne, and Clarence A. Notman, Detroit, Mich.

1,501,409. Bathing cap. Darrell Deane Logan, Dallas, Texas.

1,501,478. Rim. Burgess Darrow, Huntington Park, Cal., assignor to Goodyear Tire & Rubber Co., Akron, Ohio.

1,501,581. Demountable-rim-securing device for vehicle wheels. William N. Booth, Detroit, Mich.

1,501,728. Girdle. Lottie G. Rosenbaum, New Rochelle, N. Y.

1,501,778. Cushion wheel. William P. Hoopes, Buffalo, N. Y.

1,501,827. Soft-headed mallet. Chauncy P. Whisler, Kenmore, Ohio, assignor to Miller Rubber Co., Akron, Ohio.

JULY 22, 1924

1,501,919. Rubber Holder for Cylinders. John Peters, Huntington, N. Y.

1,501,964. Demountable Rim. John M. McQueen, Preston, Idaho.

1,502,027. Method of Manufacturing Tires. Fred. D. Fowler, Watertown, Mass., assignor to Hood Rubber Co., Watertown, Mass.

1,502,036. Heel Construction for Footwear. Eugene C. Heilhecker, Bristol, R. I., assignor to National India Rubber Co., a corporation of Rhode Island.

1,502,039. Tire Alarm. William Knutson, Fort Shaw, Mont.

1,502,120. Machine for cutting rubber and the like. Charles Rasmussen, Racine, Wis., assignor of one-half to Ralph T. Ingalls, Racine, Wis.

1,502,205. Vulcanizing Process and Apparatus. Lee R. McGuire, Chicago, Ill., assignor to Morgan & Wright, a corp. of Michigan.

1,502,516. Demountable Rim. John Stanley Multer, Portsmouth, Ohio.

1,502,598. Waterproofing for Cloth. Nathaniel A. Thompson, Kansas City, Kansas.

1,502,637. Protector for Pneumatic Tires. Steve S. Konieczki, Stevens Point, Wis.

1,502,630. Demountable Rim. Allen C. Hargrave, Anna, Ill., assignor of one-tenth to Ed. Samson, Anna, Ill.

New Incorporations

ALABAMA

Gafford Tire Company, Inc. To manufacture auto tires and accessories. Authorized capital $2,000. Incorporators, Alex McElroy, Elizabeth M. Gafford and Mrs. E. R. McElroy. Principal offices, Birmingham, Ala.

DELAWARE

Everlast Heel & Rubber Corporation. To deal in leather and rubber. Capital $200,000. Principal office, Dover, Delaware.

NEW YORK

Kittle & Rutter, Inc. For buying and selling of crude rubber. Capital 100 shares npv. Incorporators, Lester Kittle, Grand View, N. Y., Frank S. Rutter, Englewood, N. J., and Naomi Ranson, 600 West 183rd Street, New York City. Principal office, New York City, N. Y.

Radical Rubber Co., Inc. To deal in horses' hoof pads and leather goods. Capital $10,000. Incorporators, S. Earl Levene, Far Rockaway, Samuel M. Newman, 600 West 163rd Street, New York, and Bertha Weinberg, Bronx, New York. Principal office, Albany, N. Y.

OHIO

Utility Tire & Rubber Co., Capital $50,000. Incorporators, R. E. Nela and W. G. Miles. Principal office, Akron, Ohio.

PENNSYLVANIA

Chadwin Tire & Rubber Co. Capital $100,000. Incorporated by L. I. Chadwin, 434 South Forty-ninth Street, Philadelphia, Pa. Principal office, Philadelphia, Pa.

Lincoln Tire & Rubber Co. Capital $25,000. Incorporaters, F. E. Weddell, Scotdale, Pa., John C. Bierer and Isaac W. LeBarrer of Uniontown, Pa. Principal office, Uniontown, Pa.

TEXAS

Nitschke Tire Co., Inc., Austin, Texas. Capital stock, $10,000. Incorporators: J. Bassett Nitschke, Hillaire F. Nitschke and Winnie R. Nitschke.

Trade Marks

(Unless otherwise specified, these trade mark registrations are subject to opposition within 30 days of date published)

JULY 22, 1924

PROTEX—No. 179,035. The Fair, Chicago, Ill. Gum-rubber aprons, rubberized aprons, rubber household aprons, rubber household gloves, and baby pants.

PROTEX—No. 179,036. The Fair, Chicago, Ill. Rubber household sheeting.

White Disc Crossed by a Red-colored Band. No. 179,936. The B. F. Goodrich Co., New York City. For boots, shoes and slippers made principally of rubber or rubber and fabric, tennis shoes and sport shoes made partly of rubber and partly of fabric or leather, or both.

MADAME X—No. 191,850. The Thompson-Barlow Co., Inc., New York City, N. Y. Rubber girdles.

BALFLITE—No. 196,044. B. Altman & Co., New York City. Golf balls, tennis balls.

NYCO—No. 196,185. New York Auto & Radio Supply Co., Chicago, Ill. Tires, tubes, valves, valve stems; fabric reliners, tire boots, blow-out patches, inner tires; machinery packing of asbestos, rubber and fabric; fan belts, radiator hose, transmission lining, brake lining.

REDLEAF—No. 196,280. John Wanamaker, Philadelphia, Pa. Rubber gloves, shoes.

RITA—No. 196,470. The Munroe Shoe Co., Inc., Auburn, Me. Men's, women's and children's shoes, boots and slippers made wholly or in part of leather, rubber, canvas or textile material.

STANOLIND—No. 196,629. Standard Oil Co., Whiting, Ind., and Chicago, Ill. Mineral rubber asphalt, asphaltic compound for use in the manufacture of automobile tires, etc.

FISK, word included in design of child holding tire and candle—No. 196,656. The Fisk Rubber Co., Chicopee Falls, Mass. For tires and tubes.

PREMIER, word included in design of child holding tire and candle—No. 196,657. The Fisk Rubber Co., Chicopee Falls, Mass. For vehicle tires made wholly or partly of rubber.

GSCO in a hexagon—No. 197,070. Glaser Shoe Co., San Francisco, Cal. Infant's and children's shoes of leather, canvas, rubber and combinations thereof.

GOOD FORM—No. 197,142. Good Form Clothing Co., New York City. Raincoats and overcoats.

(Not subject to opposition)

THE WALTON BRAND—No. 187,001. Southern Suspender Co., Edwards, Miss. Suspenders, garters, arm bands, leather, rubber and fabric belts for personal wear.

STANDARD—No. 187,036. Thos. A. Farrell, doing business as Standard Rubber Co., Carlstadt, N. J. Rubber heels.

BETTY BARR—No. 187,046. The May Department Stores Co., St. Louis, Mo. Shoes made of leather, rubber, fabric, or combination thereof.

Use
THE MARKET PLACE
on the page opposite
to help fill your needs

Shipments of Rubber Manufactures from the United States to Non-Contiguous Territories

During June, 1924

	Alaska		Hawaii		Porto Rico	
	Quantity	*Dollars*	*Quantity*	*Dollars*	*Quantity*	*Dollars*
Boots and Shoes (Pairs)	8,233	23,518	1,598	2,347	223	82
Canvas Shoes with Rubber soles (Pairs)	....	....	4,691	6,012	46,712	30,757
Druggists' Rubber Sundries (Pounds)	454	374	1,414	1,526	1,407	1,467
Automobile Casings (Number)	....	....	5,791	89,420	4,481	62,230
Automobile inner tubes (Number)	650	5,305	5,314	11,695	4,912	12,905
Other tires (Number)	....	....	250	502	664	2,256
Belting, Hose and Packing (Pounds)	25,829	13,168	23,942	10,446	11,944	3,791
Other Rubber Manufactures (Pounds)	647	496	9,545	6,480	19,960	7,078
Coated and Waterproofed goods (Pounds)	14,578	12,250	9,427	4,689	9,315	6,957

During the Six Months ending June, 1924

	Alaska		Hawaii		Porto Rico	
	Quantity	*Dollars*	*Quantity*	*Dollars*	*Quantity*	*Dollars*
Boots and Shoes (Pairs)	37,475	114,160	5,095	7,623	14,996	10,685
Canvas Shoes with Rubber Soles (Pairs)	8,363	17,120	29,295	39,406	289,035	198,035
Druggists' Rubber Sundries (Pounds)	513	531	9,003	10,888	10,821	10,401
Automobile Casings (Number)	645	11,599	36,128	538,592	25,101	346,665
Automobile Inner Tubes (Number)	1,041	6,356	36,106	75,340	24,639	51,233
Other tires (Number)	17	34	2,794	9,099	2,307	6,999
Belting, Hose and Packing (Pounds)	185,675	88,875	174,187	81,263	60,766	21,540
Other Rubber Manufactures (Pounds)	5,389	3,600	83,751	54,903	100,585	39,905
Coated and Waterproofed Goods (Pounds)	79,700	54,981	65,857	40,529	37,736	24,740